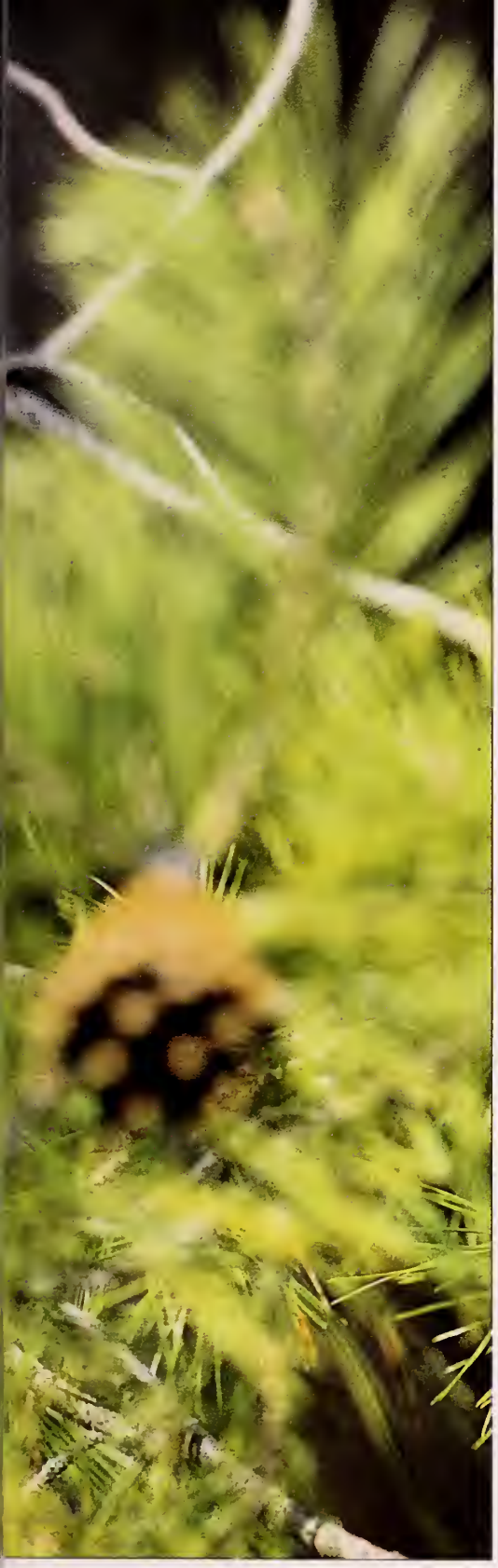
VIRGINIA WILDLIFE

DECEMBER 1993 ONE DOLLAR

Cover: *Big bucks are hard to come by late in the season. Wary as they are, you still may be able to sneak up on one—see p. 27 for details. Photo by Bill Lea.*
Back Cover: *photo by Gary Carter.*
Above: *Do you want to see more bobwhites on your land? Learn how to bring more wildlife to your property from folks who have done it. See page 15 for details. Photo by Maslowski.*



VIRGINIA WILDLIFE

With many significant achievements under our belts after 75 years of fish and wildlife management, VDGIF is charting a course for the future—and we need your help. See p. 20 for details. (VDGIF personnel at work on wild turkey restoration; photo by Lee Walker.)

Features

4 **Birds of a Feather Don't Always Flock Together**
by Gary Constanzo
Virginia is home to a growing population of resident Canada geese—and they don't act a thing like their migrating cousins.

9 **A Magnificent Obsession: Audubon's *Birds of America*** by Stephen May
A one-of-a-kind exhibition of John J. Audubon's work is on display in Washington D.C. Here is the story behind his remarkable achievement.

15 **For Wildlife Only** by Bob Gooch
Rhae and Beverly Adams have shown us how managing your land for wildlife can yield spectacular results.

19 **Beyond 2000: Virginia's Fish and Wildlife Legacy**

20 **An Eye on the Future... A Salute to the Past**
24 **Charting our Course: Vision 2003**

27 **Late-Season Tactics for Deer** by Don Shumaker
There's still time to come up with some new tactics for hunter-wise deer.

31 **Grouse'n About Grouse** by David Hewitt
Where are all the ruffed grouse in Virginia?

December Journal

37 Recipes
38 Photo Tips
39 Boating Safety
43 1993 index

Dedicated to the Conservation of Virginia's Wildlife and Natural Resources

VOLUME 54 NUMBER 12

Birds of a Feather Don't Alv

by Gary Constanzo

Virginia is home to a growing population of resident Canada geese—and they don't act a thing like their migrating cousins.

You hear something in the distance and pause to listen. A dog barking? No, as the sound draws closer, it is unmistakable—migrating Canada geese! The sight and sound of Canada geese have traditionally marked the coming of autumn. Geese usher in cooler weather, colorful foliage, and the fall harvest.

Yet, these days we also have geese in Virginia in the summer. In fact, in addition to the geese migrating here in the fall, there are increasing numbers of non-migratory Canada geese that stay in Virginia all year long.

Although similar in physical appearance, the Canada geese *(Branta canadensis)* in eastern North America can be classified into several different groups based upon differences in behavior, distribution, and physical characteristics. Migrant Canada geese nest in northern Canada, fly south to winter in warmer climates, and then return north in the spring.

Most of the migrant geese that winter in Virginia are part of the so-called "Atlantic population," and they nest in the Ungava Peninsula region of northern Quebec. In addition, a small percentage of the Canada geese that winter in Virginia

Lynda Richardson

They nest and raise their young in a variety of areas including marshes, fields, or grassy habitats where goslings can find insects and fresh vegetation to eat. Family groups join together to form local flocks in late summer and early fall. The geese get restless this time of year and will fly around to investigate the other ponds and fields in their area. Winter is spent in the same general area, though the flocks will have a few favorite places where they spend most of their time.

Contrary to popular opinion, our resident goose population did not originate from geese crippled during the hunting season, or from a group of migrant geese that decided not to migrate. Rather, the resident goose population originated from birds that were released or escaped from private waterfowl collections or hunting clubs 40-50 years ago.

These ancestors of our present-day resident geese were descendants of the non-migratory giant race of Canada geese *(Branta canadensis maxima)*. This is the reason that our resident geese are slightly larger than migrant geese. However, all Canada geese look similar and it is difficult to distinguish one type from the other based on physical appearance.

ys Flock Together

come from nesting grounds in the James Bay Region of Ontario and Quebec, and are known as the Southern James Bay Population. Both these migrant populations are predominantly of the Interior race (or subspecies) of Canada geese known as *(Branta canadensis interior)*.

The Canada geese that do not migrate, but instead remain in Virginia year-round are referred to as "local breeding" or "resident" Canada geese. In the spring, these resident geese separate into breeding pairs and set up territories on local ponds.

Allan Hearne

Top and above: *Around 50,000 migrant Canada geese have wintered in Virginia over the past three years, down from around 80,000 just 10 years ago. Our resident goose population, however, is flourishing.*

Our resident goose population is on the increase and expanding its range. Twenty years ago, a small resident goose population was limited to areas of the piedmont and northern Virginia. The population grew slowly at first, but has increased rapidly in recent years as people brought geese into new areas to establish their own flocks, and federal and state agencies started relocating nuisance geese.

Today, resident geese are found throughout the state where many are outliving their welcome. Nonetheless, there are few places left anymore where geese can be moved without causing additional problems.

In urban areas, for example, geese have grown accustomed to people and are not easily frightened away. Certain flocks are considered a nuisance because they foul lawns, parks, or beaches with their droppings. The geese often seek out such places because they contain open areas where the birds can find food and water with little disturbance.

Similarly, golf courses are attractive to geese because they provide succulent green grass to eat and quiet ponds on which to rest. However, the birds can cause damage to the fairways and greens, and be an inconvenience to the golfers.

Resident geese are also a problem along grassy airport runways where bird-airplane collisions are a concern. In addition, resident geese have been responsible for damage to some agricultural crops.

In sharp contrast to the boom in our numbers of resident geese, migrant Canada geese have been declining for the past seven years. In the Atlantic Flyway, the population of migrant geese has declined from a high of about 900,000 in the mid-80s, to a low of 570,000 in 1993. In Virginia, there has been a declining trend in migrant goose numbers, from an average of 80,066 in 1983-85, to an average of 48,350 in 1991-1993.

This decline is primarily the result of several years of poor breeding success combined with low survival rates for adult birds. Because most migrant geese nest on the arctic

M.D. Johnson

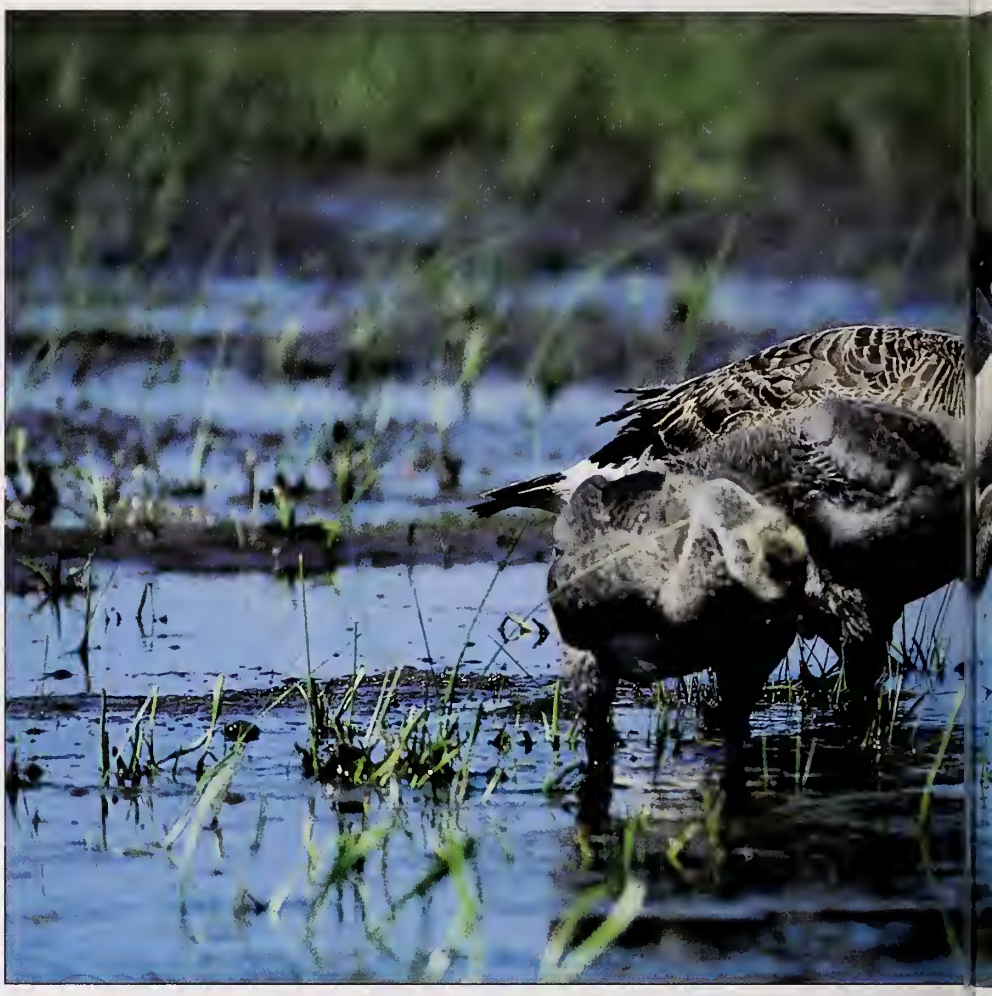
Gary Constanzo

tundra, they are subject to severe weather conditions. Snow and ice cover in late spring will delay nesting or cause some geese to forego nesting altogether. An early fall cold spell will reduce the number of young geese that survive to migrate. Such conditions have occurred several times in the last seven years.

Low survival rates for adult geese during this same time period have reduced the overall breeding population of migrant geese. These low survival rates may be a result of high harvest rates combined with high natural mortality.

In response to declining populations, restrictions on the hunting of migrant geese were implemented in 1988. The number of days in the season and the daily bag limit were both reduced in an attempt to lower the Canada goose harvest in the Atlantic Flyway by 15%. In the 1988 hunting season, the goose harvest was reduced by 30% in both the Atlantic Flyway and in Virginia.

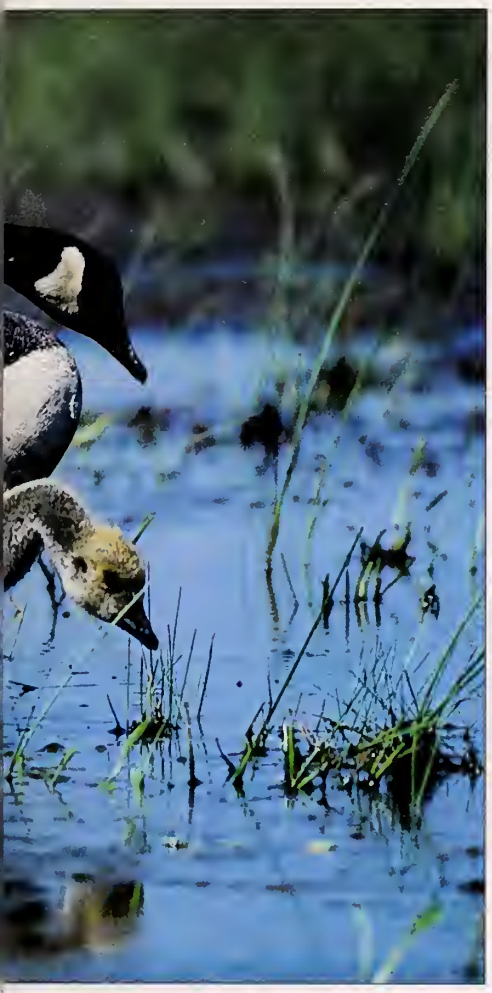
However, the harvest increased in 1989 when cold weather and ice cover made geese more vulnerable to hunting. Breeding success continued to be low from 1989 through 1992, and the population continued to decline. Additional hunting restrictions were initiated in 1992 aimed at reducing the Atlantic Fly-



Allan Hearne

Maslowski

Virginia's resident goose population is healthy and on the increase. The bad news is that conflicts between man and goose are also on the rise. Certain flocks are considered a nuisance because they foul lawns, golf courses, parks, or beaches with their droppings, and others frequent grassy airport runways where bird-airplane collision are a serious concern.



way harvest by 60%, as compared to 1985-87 levels. A significant harvest reduction was necessary to allow adult survival rates to increase. Flyway-wide restrictions on hunting dates were initiated, and the bag limit was reduced to one goose during the first portion of the season.

These restrictions were generally successful in the first year of implementation. The Atlantic Flyway harvest of migrant Canada geese was reduced by about 50% in the 1992 hunting season. This harvest reduction will remain in effect for a minimum of three years in order to allow the population to recover.

Faced with two different Canada goose populations whose numbers are going in opposite directions, the Virginia Department of Game and Inland Fisheries (VDGIF) initiated a study to help develop management strategies for both migrant and resident geese. The study is being conducted cooperatively with the U.S. Fish and Wildlife Service (USFWS) and other states and Canadian provinces in the Atlantic Flyway. It is designed to determine flock movements and distribution, and to estimate the survival rates and population size of both the resident and migrant goose populations.

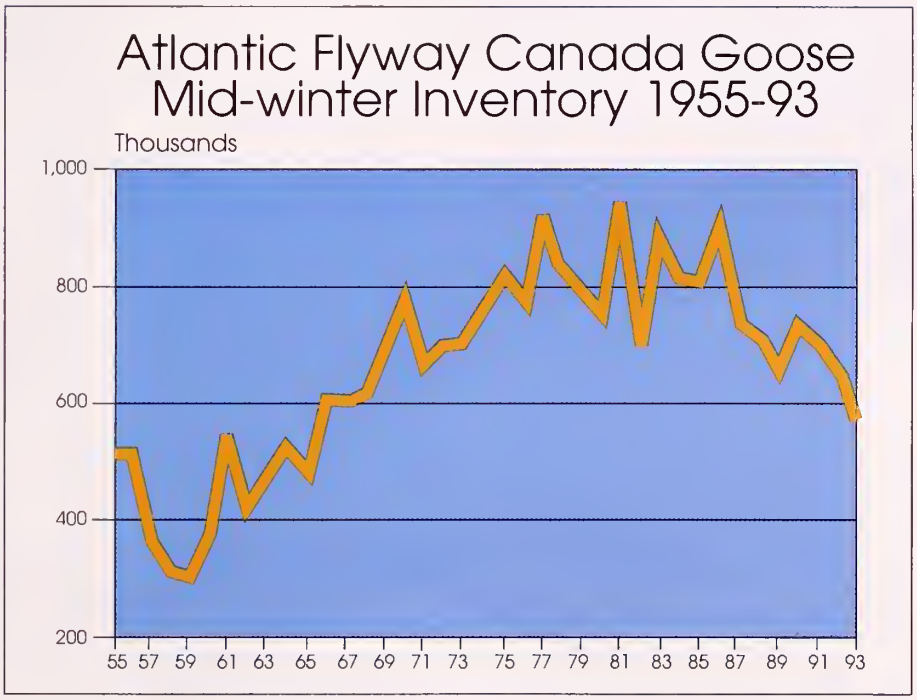
To obtain this information, neck collars and leg bands are being fitted on a sample of migrant and resident geese in Virginia and in the other East Coast states. Neck collars have been used to study geese and swans in various parts of the world for over 25 years. They are made of flexible plastic, fit like a bib at the base of the bird's neck, and the geese adjust to wearing them shortly after they are put on. The advantage of using neck collars in addition to standard legbands is that individual geese can be identified from a distance with binoculars or a spotting scope. Thus, birds can be observed repeatedly throughout the state or the flyway, and from one year to the next without having to be recaptured or reported by a hunter.

Each goose can be identified by a specific identification code printed on the neck collar. The code consists of 3 alpha-numeric characters and can include:

the letters: A, C, E, F, G, H, J, K, L, M, N, O, P, R, S, T, U, V, X, Y, Z,

Migrant Canada Goose Trends in Virginia

Hunting Season	Mid-Winter Inventory	Mid-Winter Harvest
1982-83	65,700	13,700
1983-84	92,800	22,100
1984-85	81,700	10,800
1985-86	82,300	13,600
1986-87	62,700	17,500
1987-88	90,300	13,600
1988-89	56,517	10,400
1989-90	88,925	19,200
1990-91	56,105	8,900
1991-92	43,850	12,030
1992-93	45,100	10,200



There has been a declining trend in the number of migrant Canada geese counted on Virginia's mid-winter inventory and the number harvested over the last 10 years. This parallels the same declining trend evident in the entire Atlantic Flyway. Graphics by Pels.

the numbers: 1,2,3,4,5,6,7,8,9, or
the symbols: ?,+,=,%,#.

Some letters are not used because they look too similar to other letters or numbers. The characters are used in any order and can be repeated. Examples of neck collar codes could be: "CT?," "A18," "E4+,""G%=," or "CCF." The neck collars are colored white or yellow with black characters, though some may have become stained and appear rust colored.

The most important part of the study is observing the neck-collared geese. Repeated observations of individual birds allow us to determine movements, and to estimate survival rates and population size. Virginia and all the other states and Canadian provinces in the flyway have observers in the field locating and recording neck collar codes.

The Canada goose study has been underway for three years and has already provided information useful in managing our goose flocks. We have obtained a good estimate of our resident goose population and have a better understanding of goose movements and distribution.

John Heidecker

The greatest density of resident Canada geese in Virginia has been observed in the central piedmont and in northern Virginia, though they are on the increase throughout the state.

The greatest density of resident geese has been observed in the central piedmont and in northern Virginia. There is also a growing number of resident geese on the lower peninsula, in the Shenandoah Valley, and on the Eastern Shore. The estimated population in the entire state is 50,000-60,000.

Be On The Lookout for Goose "Necklaces"

Gary Constanzo

The public can assist in the ongoing Canada goose study by reporting any neck-collared geese observed to: Goose Observation, Virginia Department of Game & Inland Fisheries, 5806 Mooretown Rd, Williamsburg, VA 23188. Along with the neck-collar code(s), please include information on the date and location of the sighting, the number of geese in the flock, and their general activity (feeding, resting, etc.).

Most resident geese don't move very far, and generally stay within a 10-mile radius of where they were banded. Some birds, however, have moved farther and have been sighted in other states. Similarly, geese considered as local breeders in other states (Maryland, North Carolina, West Virginia) have shown up in Virginia. In addition, a number of resident geese from New York State have been observed in Virginia in the winter. These birds were probably prompted into flying south by cold weather and ice cover in New York.

Based on information obtained from this study, VDGIF initiated a special resident goose hunting season this year (September 7-15) in certain areas of the state. Although the special season is established specifically for resident geese, it is similar to other migratory bird hunting seasons and is regulated and administered by USFWS. Because it is not easy to tell the difference between a resident and a migrant goose, the season must be conducted before migrant geese arrive. In Virginia, the first migrant geese generally arrive around September 20th, therefore the resident goose season is not permitted to run beyond September 15.

To participate in the resident goose season, hunters are required to obtain a free permit from VDGIF. A daily hunting diary is included with the permit to be returned at the end of the season. Information obtained from these diaries will be used to evaluate hunter participation and goose harvest. Other states such as Pennsylvania, North Carolina, and New York have initiated similar hunting seasons in recent years.

The overall goal of the resident goose season is twofold. It offers recreational opportunities for waterfowlers at a time when restrictions are being placed on other species. And the harvest should help reduce the growth rate of the resident goose population. The season will not, however, solve the nuisance goose problem, because many geese are located in areas which are not open to hunting. But, it may alleviate some of the nuisance problems in more rural areas. Over 2,500 hunting permits were issued in the first season, and participation will probably increase in coming years.

Whether you're a hunter, a birdwatcher, or simple nature lover, the sights and sounds of Canada geese can be something special. A symbol of grace and beauty, Canada geese have long been the subject of folklore. Their coming and going signals the changing of the seasons and the passage of time. Through research and management, VDGIF is working to ensure that Virginians can enjoy the sights and sounds of Canada geese for generations to come.

Gary Constanzo is VDGIF's waterfowl research biologist. He works out of the Williamsburg office.

A Magnificent Obsession

Audubon's *Birds of America*

by Stephen May

A one-of-a-kind exhibition of John J. Audubon's original work is on display in Washington, D.C. Here is the story behind his remarkable achievement.

John James Audubon is such a legend today, revered as America's preeminent naturalist and bird artist, with his prints hanging on many of our walls, that it is difficult to grasp how hard he had to struggle to get his ornithological prints to the public. Only a man of enormous energy, ambition, determination and patience, augmented by a knowledge of nature and artistic genius, could have achieved what he did.

At the height of his career, Audubon wrote, "I have labored like a cart horse for the last 30 years on a single work." That work was the incredibly daunting task of depicting every bird in North America.

For decades, Audubon traversed the nation in all seasons and weather in search of birds in their natural habitats, traveled up and down America and Europe to find supporters for his work, and utilized a keen eye and artistic skills to create a lasting legacy of ornithological images.

The result of his labors was his magnificent masterpiece, *The Birds of America,* which appeared in four volumes published between 1827 and 1838. Containing 435 hand-colored prints copied from his superb watercolors, it constituted an achievement without parallel in the history of naturalist art, admired to this day for its accuracy and artistry. Many of the birds Audubon illustrated were common in Virginia in the 19th century; most can still be seen today.

This year's start of a national tour of Audubon's original watercolor bird portraits, the publication of two books of high-quality reproductions, and the release of a new biography, have focused new attention on the adventures and accomplishments of the man behind those familiar bird pictures. The major exhibition, "*John James Audubon: The Watercolors for The Birds of America,*" will be on view at the National Gallery of Art in Washington, D.C. through January 2, 1994, and will visit eight other cities in the next three years.

The show presents comprehensive insights into Audubon's artistic development, his working methods, and the making of *The Birds of America.* In addition, this will be the first time over 90 of his rarely seen original watercolors, newly conserved to reveal their extraordinary freshness and vitality, have ever toured the country.

Audubon came to his life's work by a roundabout route. Born in Haiti in 1785, the son of a French sea captain and his mistress (a French chambermaid), his mother died six months after his birth. After the age of four, he was raised by his father and an indulgent stepmother near Nantes, France. They taught him the graces of a country gentleman, encouraged his love of nature and wildlife, and saw to it that he received some art training.

At the age of 17, partly to avoid conscription into Napoleon's army, his father sent him to manage his estate in Mill Grove, outside Philadelphia. Audubon's earliest surviving artworks, dating from 1805-1812, are primarily pastel and pencil renderings of stationary birds in profile against neutral backgrounds, the static format which was the standard for ornithological illustrations of the time.

Around this time he met and married Lucy Bakewell, who was to be his heroic, devoted supporter through thick and thin for the rest of his life. Before long, the young couple moved to Kentucky, where Audubon tried his hand as a frontier merchant. As a boy in France he had explored the countryside, collected birds' nests, and made bird drawings. He found the wonders of the Kentucky wilderness even more fascinating—the charms of this wild country proved much more interesting than the demands of business.

After several ventures failed and he went bankrupt in 1819—partly because he was always roaming the woods sketching—he eked out a living as an itinerant portrait painter and worked briefly as a taxidermist in Cincinnati. At the age of 35, he decided to turn passion into profession, setting out to depict every bird in his adopted country with an eye toward publishing the results.

Audubon's monumental project was preceded in the United States by the work of Alexander Wilson (1766-1813), a Scotsman, poet, self-trained naturalist and artist. Seeing some of Wilson's early drawings, Thomas Jefferson encouraged him to undertake what evolved into the multi-volume *American Ornithology*, published in 1808-1814.

Wilson traveled extensively collecting specimens and making drawings. Working with stuffed birds as models, his renderings were turned into nine beautiful books. Crisp, clear plates and accurate, though stiff and static images, are accompanied by a graceful text. It was a remarkable accomplishment for a man with no resources except his own ability and gumption, but it was later eclipsed by Audubon's *The Birds of America.*

When Audubon launched his full-time pursuit of America's birds in 1820 he vowed that, unlike Wilson, he would never paint stuffed specimens. He set out to gain direct knowledge of his subjects in their natural settings by tramping through woods and over plains all across the nation.

His nearly two decades of wandering took him to mountains and valleys, swamps and uplands, lakes and rivers, from Canada to the Gulf of Mexico. He traveled the length of the Ohio and Mississippi Rivers and up the Missouri to Yellowstone, often working 17-hour days under trying conditions. He explored the Atlantic Coast from the Dry Tortugas to southern Labrador, and the Gulf Coast from Florida to Texas.

Opposite: *John James Audubon, 1840-1841.* ***Northern Goshawk and Cooper's Hawk****, 1809 and 1830. Watercolor, pastel, gouache, graphite on paper.* ***This page: Summer Tanager (above left)****, 1821 and later. Watercolor, graphite, pastel, gouache on paper.* ***Above: Long-Billed Curlew****, 1831. Watercolor, graphite, gouache, pastel on paper.* ***Page 9: Red-Bellied Woodpecker, Northern Flicker, Yellow-Bellied Sapsucker, Lewis' Woodpecker, Hairy Woodpecker****, 1822 and 1836-1837. Watercolor, graphite, pastel, gouache, collage.*

Implementing his conviction that "nature must be seen first alive and well studied before attempts are made at representing it," Audubon devised techniques and formats to convey convincingly not only the physical features of birds, but their behavior and habitats as well. Primarily a self-taught artist, he perfected his approach through trial and error and an obsessive desire to portray bird life accurately. He sought, he said, to "represent the originals at their avocations...Some are seen pursuing their prey, sitting on their nests, or feeding their young; others...swim, wade, or glide in or over their allotted element."

In most cases, building on the knowledge he had gained by observing birds in the wild, Audubon drew directly from freshly killed specimens in order to capture their shapes, textures and colors as accurately as possible. Birds were threaded with wire and set in aesthetically pleasing poses characteristic of their daily activities, such as foraging or hunting prey.

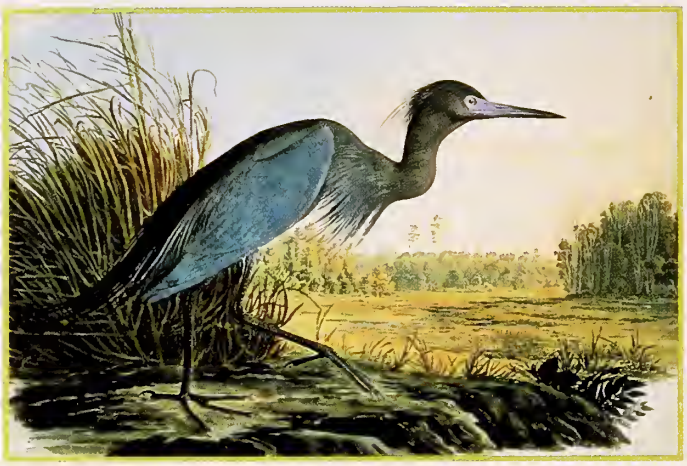
Going beyond his earlier efforts in pastel and pencil, Audubon experimented with watercolor, gouache and glazes, often combining several media in one work to replicate the colors, features and plumage of his subjects. Background plants and landscapes for many of the watercolors were painted by a series of talented assistants who often accompanied him on his travels.

The evolution of Audubon's art can be seen in *Northern Goshawk and Cooper's Hawk* (**opposite page**), part of which was completed in 1809, part in 1830. The Cooper's hawk in the lower right and the adult northern goshawk in the lower left, drawn by Audubon early in his career, appear in rigid profile, consistent with the stiff, stylized manner of

Wilson and other bird illustrators before him. The animated pose of the immature goshawk perched at the top, created after several decades of experience, reflects Audubon's mature style. He later combined the two earlier portraits with the later version for the composition which appeared in *The Birds of America.* Together they show how over the years Audubon transformed his illustrations from portraits of dead, stuffed specimens to vignettes of active, lively birds.

Audubon was the first artist to show birds consistently in life size, using different formats for small songbirds as opposed to larger hawks, owls and shorebirds. In the vertical composition of *Summer Tanager* (**page 11**), he depicted an adult male (top), adult female (center) and immature male (bottom) to illustrate differences in their plumage. Since these birds consume insects as well as fruit, he showed the adult male struggling to swallow a large beetle, while the other birds are surrounded by edible grapes on the vine. In his typically meticulous observation of their habitat, Audubon recorded that the summer tanager was a "beautiful species of solitary habits, preferring at all times the interior of the forests, but not the densest parts of them."

Audubon chose solo portraits for a number of his favorites. In his *Long-billed Curlew* (**page 11**), posed with the city of Charleston, S.C. minutely detailed in the background, he used the bird's magnificent, curved beak as the focus and principal compositional feature. He also showed a familiar *Little Blue Heron* (**below left**) walking gracefully and feeding deliberately in a marsh setting. Another eastern seaboard bird, the *Common Tern* (**bottom**), with its pointed wings and deeply forked tail, was depicted presumably searching for a small fish,



***Above: Little Blue Heron**, 1832. Watercolor, graphite, pastel, gouache on paper. **Above right: Snowy Owl**, 1829. Watercolor, graphite, pastel on paper. **Below right: Common Tern**, 1834. Watercolor, graphite, gouache.*

perhaps uttering its harsh, rolling call.

In 1824, feeling he had made substantial progress after four years of work on his project, Audubon took his portfolio to Philadelphia, then the intellectual and scientific center of the country, seeking support for his efforts and an engraver to copy his watercolors. But Wilson still had many admirers who were hostile to the younger artist's challenge to the older traditions of bird illustration, and many were put off by Audubon's outdoorsman's manner and appearance. Finding no support in Philadelphia or New York, Audubon made the extraordinary decision to go to Europe to seek a publisher.

His art was warmly received at exhibitions in England and Scotland. "I am feted, feasted, elected honorary member of societies, making money by my exhibition and by my painting," Audubon exulted in a letter to his wife from Edinburgh.

Ironically, the "American woodsman" appearance which had been so detrimental in the U.S. had great appeal to Britons familiar with the legends of Daniel Boone and the frontier tales of James Fenimore Cooper. Suitably encouraged, Audubon set out to sell serial engravings of his work through individual subscriptions, a laborious, time-consuming task to which he brought romantic good looks, flamboyant salesmanship, determination and patience. He followed the same course, with less success, in France.

Engaging the services of engraver Robert Havell and his gifted son, Robert, Jr., Audubon embarked on the decade-long process of turning his watercolors into saleable prints. *The Birds of America,* its 435 handcolored prints faithfully copied by Havell from the original works, came out in four volumes, from 1827-1838. The life-size engravings appeared on double-elephant folio sheets measuring over two by three feet, accompanied by a synopsis and index. A companion five-volume *Ornithological Biography* with detailed essays on the birds, is still regarded as one of the most complete and accurate texts in the field.

While exercising tight supervision over all aspects of this complex process, Audubon tirelessly promoted sales. He courted individual subscribers, wooed influential patrons, and addressed scientific organizations. His indefatigable labors ultimately led to orders for nearly 200 complete sets of the very costly prints.

In 1829, after a three-year absence, Audubon returned to the United States, and although he went back to England several times, he devoted most of the next few years to a renewed search for new birds to illustrate. "I wish I had eight pairs of hands," he wrote in his journal from New Jersey, "and another body to shoot the specimens." During these culminating years of his project, Audubon created some of his most powerful and accomplished images.

His keenly watchful *Snowy Owls* (**opposite page**), bright yellow eyes fully dilated to see in the gathering dusk, are depicted (the smaller male above the female) in a carefully detailed design of brown, black and white plumage evocatively set against a dark and stormy twilight sky.

In the delightful *Atlantic Puffin* (**below left**), based on observations in Labrador, he posed one bird frontally to demonstrate how puffins nest, while the other's profile emphasizes its stark black-and-white plumage and the large, colorful bill which has earned it the name "sea parrot."

Left: Atlantic Puffin, *1833. Watercolor, graphite, gouache on paper.* ***Above right: Gyrfalcon,*** *1835-1836. Watercolor, graphite, gouache on paper.*

Although gyrfalcons are arctic birds, rarely wandering south of Canada, Audubon based the two savage-looking examples (**above**) in his 1836 version on a female specimen he had seen in Britain. The largest of all falcons and one of the world's most efficient predators, the muscular legs, hooked beak and sharp talons are carefully delineated by Audubon.

Sometimes, Audubon took some liberties with nature. A flock of ten woodpeckers (**page 9**), such as he depicted, is contrary to the solo or family group manner in which these

species feed. But the group composition enabled him to illustrate their purposeful nature and often conspicuous courtship, such as between the male (middle left) and female (middle right) flickers.

Audubon composed one scene we will never witness: a group of brightly-hued, playful Carolina parakeets (**below**) screaming amidst cockleburs. Once common in the Eastern states, these flamboyant birds—the only parrot native to America—fed on farmers' crops and were killed in such numbers that they became extinct in 1920. This brilliant symphony of greens, vermillions and yellows is a poignant reminder of the importance of protecting our natural environment and its endangered inhabitants.

After the publication of *The Birds of America*, Audubon successfully issued a smaller and less expensive octavo edition. He went on to compile an important book documenting the mammals of America. In his later years he was assisted by his sons, Victor Gifford and John Woodhouse, both talented artists in their own right, who were practically trained from birth to help him in all aspects of his artistic/naturalist projects. Senile toward the end, Audubon died at the age of 66 in his New York City home in 1851.

His place in history was secured by his brilliantly implemented mission which revolutionized the traditions of bird illustration. While replicating physical attributes with uncanny veracity, he incorporated narrative elements and aesthetic touches which made his birds come alive in their natural environments. Bird artists of great accuracy are commonplace today, and they have the added advantages of photography and other technology, but none has equaled the remarkable zip and beauty captured by Audubon nearly two centuries ago. John James Audubon bequeathed to our generation a timeless legacy, an authoritative record of American bird life in images of profound beauty, palpable vitality and striking originality.

Stephen May is a writer based in Washington D.C. who specializes in American art.

***Carolina Parakeet**, 1825. Watercolor, graphite, gouache, crayon, pastel on paper.*

Many thanks to The New-York Historical Society for their gracious permission to use the photos appearing in this article. All works displayed here are from their collection.

Audubon On the Road

In 1863, Audubon's destitute widow sold most of his original bird watercolors to The New-York Historical Society. Due to their fragility, they have been infrequently displayed and then only in small groups, and have never before traveled. The current exhibition was selected from the Society's trove of well over 400 Audubon watercolors.

"*John James Audubon: The Watercolors for 'The Birds of America'*" runs through January 2, 1994 in the East Building of the National Gallery of Art, 4th Street and Constitution Avenue, N.W. in Washington, D.C.. Hours are Monday through Saturday, 10-5; Sunday, 11-6. Admission is free.

After closing in the nation's capital, the Audubon watercolors will travel to museums in Boston, Chicago, Detroit, Houston, Memphis, New York City, Seattle and San Francisco, where it closes on April 14, 1996.

Innumerable Audubon prints are in circulation and numerous books of his ornithological prints have been published in the past. Two books released as companions to the touring exhibition feature state-of-the-art reproductions of the original bird watercolors themselves. They will be collector's items for all Virginia bird lovers and conservationists.

The exhibition catalogue, *John James Audubon: The Watercolors for The Birds of America*, containing 95 full-color images and informative essays and published by Villard Books, sells for $39.95 paperbound.

An expanded volume of the same title, including full-color reproductions of the complete set of 470 Audubon watercolors, also published by Villard Books, is available for $75.00 hardcover.

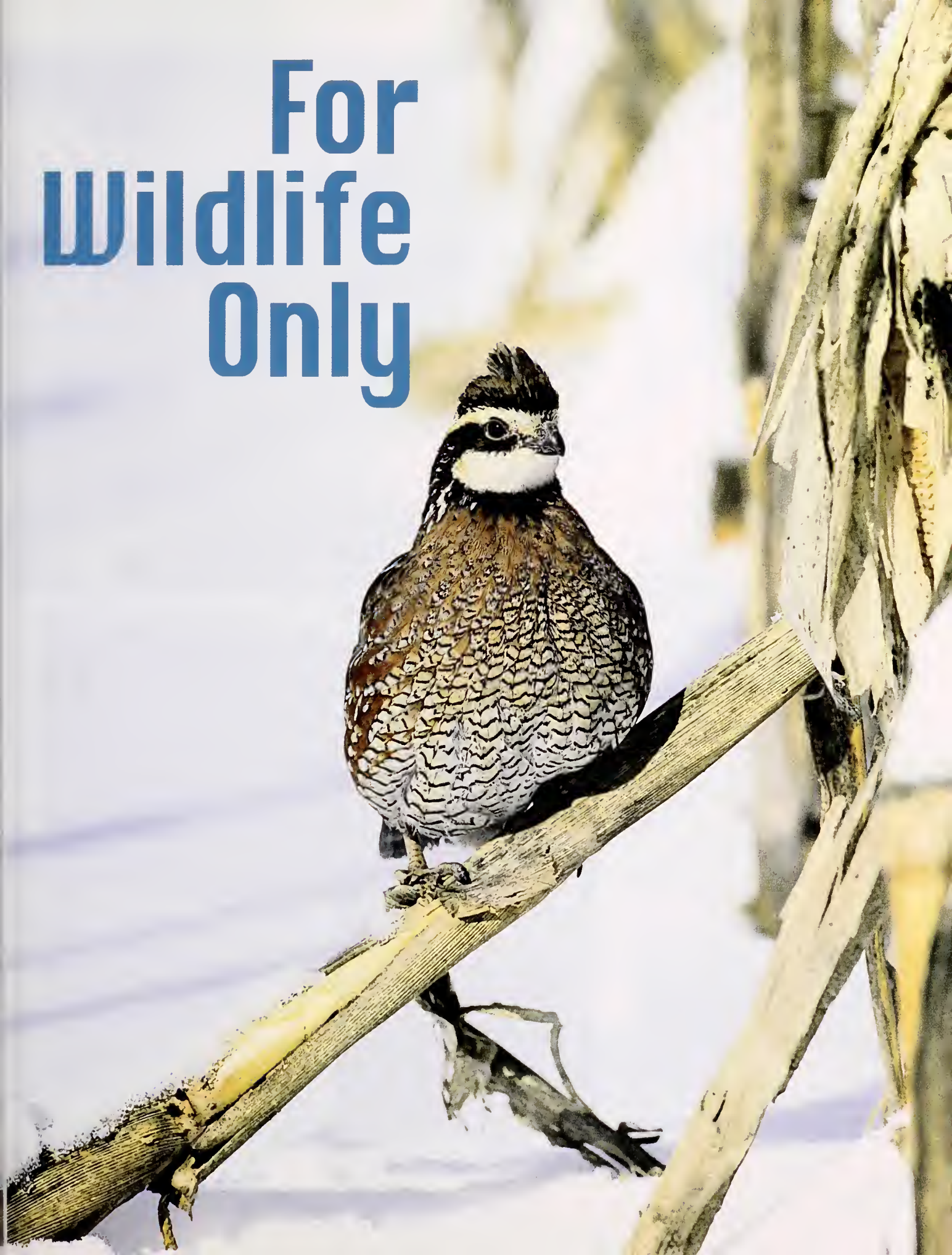
The standard Audubon biography, Alice Ford's *John James Audubon* (New York: Abbeville Press, 1988) sells for $12.95.

The new, thoroughly researched and lively biography released this fall, Shirley Streshinsky's *Audubon: Life and Art in the American Wilderness* (New York: Villard Books, 1993) is priced at $22.50.

These books are available at the National Gallery or can be ordered by calling (301) 322-5900.

Bobwhite; photo by Maslowski

For Wildlife Only



Rhae and Beverly Adams have shown us how managing your land for wildlife can yield terrific results.

by Bob Gooch

Our tour guide was bubbling with enthusiasm, pointing out pet projects, wrestling the 4x4 along a rutted road made tricky by recent rains, and answering endless questions. But Rhae Adams was not your usual tour guide. He and his attractive wife Beverly were the owners of the 500 acres of prime Buckingham County hunting land.

Rhae Adams was born in Gretna and reached Buckingham by way of Portsmouth and Virginia Beach where he met Beverly from nearby Norfolk. To fully appreciate and understand his goals and accomplishments on his Buckingham County farm, you need to first take a quick look at an active and remarkable life which began at Woodrow Wilson High School in Portsmouth where he was an all-state football player. He attended Davidson College and upon graduation moved to Virginia Beach to become the youngest Ford dealer in America. I could go on—bank founder, chairman or board member of numerous companies, active in many civic organizations, and Outstanding Young Man of Virginia in 1959. And this is just a partial list of his accomplishments.

A love of hunting brought the Adamses to Buckingham, a love that Rhae passed on to Beverly. "We went to Nebraska to hunt deer about a dozen years ago," said Rhae, "and she killed and field dressed two mule deer. That really got her into hunting. She's a better shot than I am."

Field dressing those deer came naturally. Beverly has developed a national reputation as the author of four cookbooks. She also hosted a syndicated 30-minute television program on the culinary arts for a number of years.

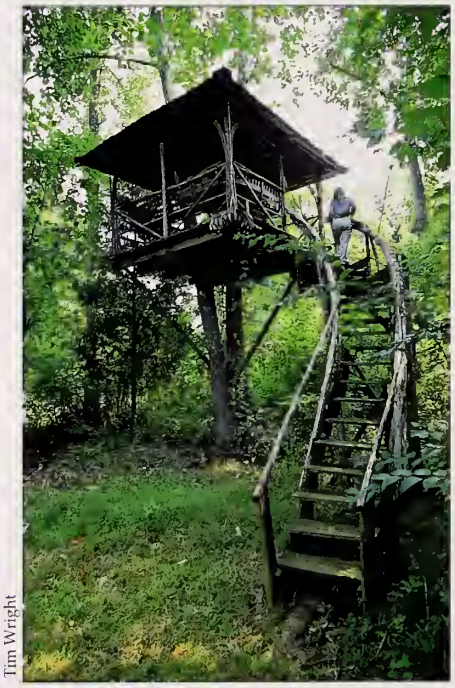
Take the love of hunting, the combined talents of an energetic husband and wife, and let them put together 500 acres of land to develop into a hunting paradise, and you get an example of what can be done to produce good hunting in Virginia.

Let's look at it.

"Quail hunting was my major goal," said our guide. "We had only five or six coveys a few years ago. We now have 20 to 25. It's hard to be exact. You might count the same covey twice, but my goal has been to build up to 50 coveys."

Rhae and Beverly Adams enlisted the aid of Patty Moore, farm habitat biologist with the Virginia Department of Game and Inland Fisheries. "You are certainly on the right track," she wrote the Adamses in September 1990 after a visit to their farm. "You have already put into practice more than most well-intentioned folks do."

A unique management tool used by the Adamses is the psuedo-fence that breaks up large fields and provides additional edge and cover. "We set some poles," said Rhae, "and run a string of plain wire on them. The purpose is to break up the fields."


Tim Wright

Tim Wright

Wildlife food patches are planted along both sides of the fence, and honeysuckle and morning glories are planted to eventually cover the fence. (Honeysuckle? I didn't know you could even buy honeysuckle seed.) But, I have hunted quail long enough to remember the old days before clean farming. In my mind's eye I could see aging fences sagging under the weight of honeysuckle and other vines. What a setup for quail! All that was needed to complete that mental picture was a pair of classy setters pointing staunchly on a bright winter day.

Those psuedo-fencerows hold all kinds of promise.

"Over the past couple of years we've cleared 25% of our land and have done extensive planting of clover and Korean lespedeza, autumn olive, and VA-70 (lespedeza).

Opposite page: Beverly Adams (left) and her late husband transformed their 500 acres in Buckingham County into a haven for the sportsman and wildlife. ***Far left:*** *They constructed an elaborate "tree house" on their property which served as both a terrific deer stand for Beverly and a delightful place to hold parties.* ***This page:*** *Breaking up fields with psuedo fences and planting wildlife food patches of clover, sunflower, lespedeza, and other "crops" for wildlife* ***(below)****, has increased the number of game and nongame species on the Adamses' farm.*

Tim Wright

We've also planted 100 wild apple trees, 100 cherry trees, 18 wild bird patches, love grass, straw patches, and brush patches. In 1992 we added 5,000 feet of fence hedgerows. We also plant sunflowers for doves."

After clearing 25% of their land, the Adamses now have approximately 125 open acres. "A good 85% of it is devoted to quail," said Rhae.

Crop farming and good quail hunting have always gone hand in hand, but the Adamses have gone beyond that by planting most of their open land exclusively for quail. They do have three fields for hay and three acres of corn for farm animals "and for game," noted Rhae.

During an age when so many hunters have marked the bobwhite off, the Adamses have proved that you can have good hunting *if* you are willing to make the commitment in managing your land.

Unfortunately, the great majority of hunters do not have the land or the financial resources to accomplish what the Adamses have. "It's really not that expensive," says Patty Moore, "if you are willing to do most of your own work. A group of hunters could pool their resources and time, lease some good hunting land, and do the same thing."

Deer hunting clubs tie up a lot of land in eastern Virginia. It might be possible for a small group of bird hunters to join them just for the opportunity to practice quail management. The quail season opens before the deer season, and runs for a month following it. Hunters could work out hunting schedules during the deer season so as not to conflict. The deer would also benefit from the work done for quail.

The Adamses' work illustrates graphically that it's still possible to have good quail hunting in a state where the bobwhite was once king. And, while most of their management efforts have been directed toward quail, Rhae's first hunting love, the work also benefits other game. "Of course the deer and turkeys benefit also," he said. Buckingham County is noted as one of the best in Virginia for both deer and turkeys. "Our deer are really healthy and you see a lot of Texas-size racks," noted Rhae.

In addition to the wildlife plots, a number of open fields have been planted in clover. Says Rhae, "I guess I've found that clover is the most important game crop. It also provides bugs and grasshoppers for the turkeys."

While Beverly has proved that she is a good wingshot, deer and turkey are her first choice, and she has enjoyed fine hunting on their Buckingham acres. To that end, they have built tree stands throughout the property. Eight of them are permanent. "You must see the tree house," said Beverly. Rhae swung the 4x4 off of the main road we had been traveling and down a narrow trail. And there was the tree house beside the trail, an imposing rustic structure built around two sturdy sycamore trees.

A stairway with hand railings invited us to climb to the covered

viewing platform where comfortable benches provided plenty of seating room. "Might be a bit too fancy for hunting," said Beverly, "but I love it up here. I usually open the deer season in it. Rain is no problem because of the roof. We even have small parties up here once in awhile."The structure is built mostly of native material and it blends well into the forest environment.

Keeping the hunting trails open requires constant attention and the Adamses take care of this by exchanging hunting permits for work on the trails. A trio of local hunters have jumped at the opportunity to tend the trails in exchange for the excellent deer and turkey hunting.

While much of the 500 acres is in forests, timber harvest has been pretty much limited to pines. "We have cut most of our pines and left the oaks," said Rhae. "The acorns are game food. We did leave some pines as cover for deer and turkeys during bad weather."

Many of the pines were cut to build the attractive log house that is the Adamses' home. They could have built one of pre-cut logs, but a home built of logs from their own land seemed to fit in with their plans for their land.

The log home overlooks a six-acre lake that has been stocked with largemouth bass, sunfish, and channel catfish. "Some of the catfish we've caught weigh four or five pounds," said Rhae.

The lake is also home to a pair of Canada geese and some mallard ducks. "We get migrating geese in the fall and winter," Rhae noted. And wood ducks use the beaver ponds and the North River which serves as the boundary on one side of the farm.

Management techniques which serve the quail population also attract rabbits, and the hardwoods are home to an abundance of squirrels.

"Patty has been a lot of help," said Rhae as we continued along one of the farm roads. Among other helpful suggestions, Patty Moore explained the use of fire, or controlled burning, to replace bush hogging.

"Use a couple of disc strips to create a firebreak and then burn your hedgerows and fields in between," she wrote them after a visit to their farm. "Don't do them all in one year; pick two or three to do each year. By the time you've burned them all one time, it will be time to start the rotation again. You should plan to burn each field once every three to four years depending upon the condition of the field."

"A spring burn in February or early March is best. You could then plant your disced strips or firebreaks with milo or forage sorghum," Patty added. "Or leaving the disced strips to come back naturally will also make good quail and wildlife habitat."

The Adamses have planted many of their fields with warm season grasses. "It makes excellent quail nesting and brood rearing cover," said Patty.

Acting on Patty Moore's advice, the Adamses had planted black oil sunflower seeds to improve dove hunting. She also advised girdling a few trees along the edge of the field to attract doves. "Doves love dead trees," she said.

On our tour, Rhae took us by a beaver pond where they had put up wood duck boxes. "We have several beaver ponds and are just getting into managing them for wood ducks," he said.

I didn't get another chance to visit with Rhae Adams. Soon after our visit and tour of his fascinating land, the health problem which had curtailed his hunting recently caught up with him. He died suddenly, if not unexpectedly, this past May, just as the acres he had attended so carefully were beginning to blossom—promising abundant food and cover for a new crop of game.

He didn't leave this earth, however, before he capped off a productive and successful life with a decade of hard work devoted to the wildlife of Buckingham County.

Although Rhae Adams didn't live to fully realize the fruits of his work, his achievements in wildlife management as a private citizen could well signal hope for the future, especially at a time when wildlife agencies are strapped for funds. We hunters thank him for showing us the way. □

Bob Gooch is a freelance writer and frequent contributor to Virginia Wildlife.

Tim Wright

Making your land a haven for wildlife does take some sweat, time, money, and a tractor or two. But it doesn't mean completely eliminating pastureland or row crops. As Rhae and Beverly Adams proved on their 500-acre farm, where there is a desire to share your land with wildlife, there is always a way.

Osprey; photo by Bill Lea

Beyond 2000

Virginia's Fish and Wildlife Legacy

Dwight Dyke

Lee Walker

White-tailed deer, photo by Bill Lea

An Eye on the Futu

A Salute to the Past

Do we take our wild animals for granted? I think a lot of folks do, perhaps assuming they are gifts from nature; things that can take care of themselves. However, from the cardinals at your backyard feeder to the thousands of deer roaming the woods, all of these animals have one thing in common...the need for protection and management. That's what the Virginia Department of Game and Inland Fisheries (VDGIF) is all about.

Recent surveys, however, show that on average almost half of the people in Virginia don't know about the Department. On the other hand, those same surveys display a strong desire for the work we're doing for wildlife and the environment.

Actually we've been working for wildlife and the environment for a very long time. Since 1916 the Department has quietly worked to bring back some animals that had become pretty scarce. Sixty years ago, for instance, only a handful of deer remained, turkeys were rare, and beavers had become extinct in Virginia.

By raising money through the sale of fishing and hunting licenses, the Department worked to restore and manage not only the animals that were hunted but many of the other birds, animals and fish we enjoy. The concept of working for all wildlife continues today with the Department's nongame and endangered species program, which strives to perpetuate those animals

that are being threatened every day.

In 1990, the Department published a mission statement reflecting its role as a total wildlife agency:

To manage Virginia's wildlife and inland fish to maintain optimum populations of all species to serve the needs of the Commonwealth;

To provide opportunity for all to enjoy wildlife, inland fish, boating and related outdoor recreation;

To promote safety for persons and property in connection with boating, hunting and fishing.

These three statements define outdoor activities that are big business. In fact, over 22,000 people in Virginia have jobs created by hunting and fishing. Those folks serve almost 3 million people, the 63 percent of Virginia's population that participate in hunting, fishing and other wildlife-related recreation.

Looking at this economic impact purely in terms of dollars shows that Virginians annually spend $1.1 billion in pursuit of outdoor recreation. Another part of this economic picture is boating. Virginia waters are host to almost 400,000 boats and the sale of boats and related equipment annually totals over $200 million. Boating also creates jobs, with over 6,000 Virginians at work in that industry.

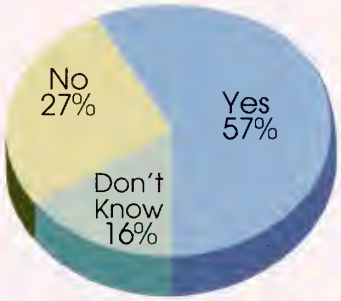
Where are those jobs and money created by wildlife? Most of them are in rural areas. The state's top turkey hunting areas, trout streams and fish hatcheries are in these areas, and boating access sites, lakes, reservoirs and most of the 29 state wildlife management areas are in locales that genuinely benefit from the economic stimulus of the Department's programs.

There's a lot of hunting and fishing, wildlife watching and outdoor recreation in Virginia...and we want to keep it that way. But there are problems we all must begin to work on today to ensure the future quality of these outdoor experiences.

More and more people are doing things outdoors and using the services VDGIF provides. As a total fish, wildlife, and boating agency, we are experiencing a rapid growth in demand for our products and services from a broader and sometimes non-paying public.

Who is paying these bills? The traditional source of funds for wildlife conservation, the sale of hunting and fishing licenses, federal taxes on sportsman's equipment and boating registration fees, has stopped growing despite an increasing demand for these services. Consequently, revenues are rapidly being outstripped by the cost of doing business. More than any other state in the Southeast, Virginia

Is There a State Agency Responsible for Fish and Wildlife Management?



Source: VA Commonwealth Survey 1990

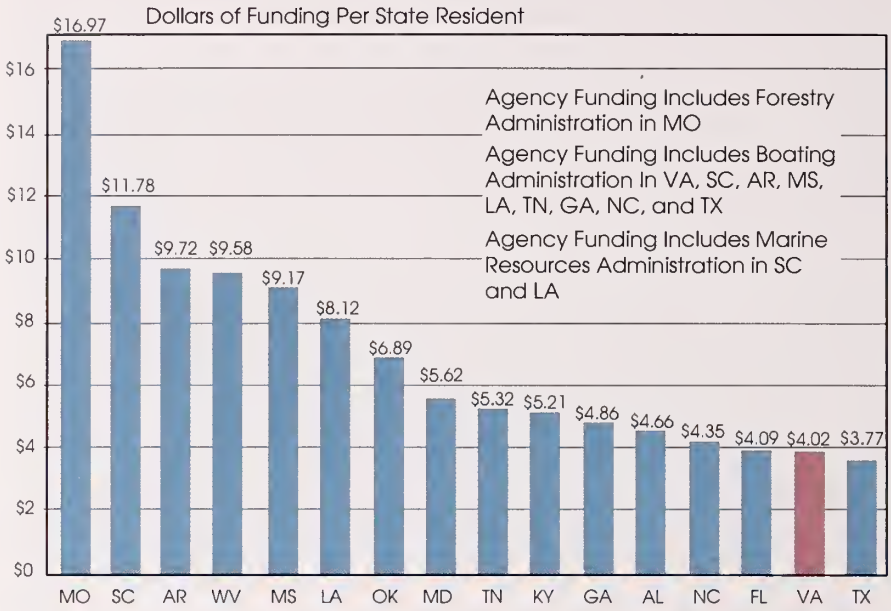
Virginians Participating in Wildlife-Related Recreation

63% of Total Population Over age16

Source: USFWS National Survey 1991

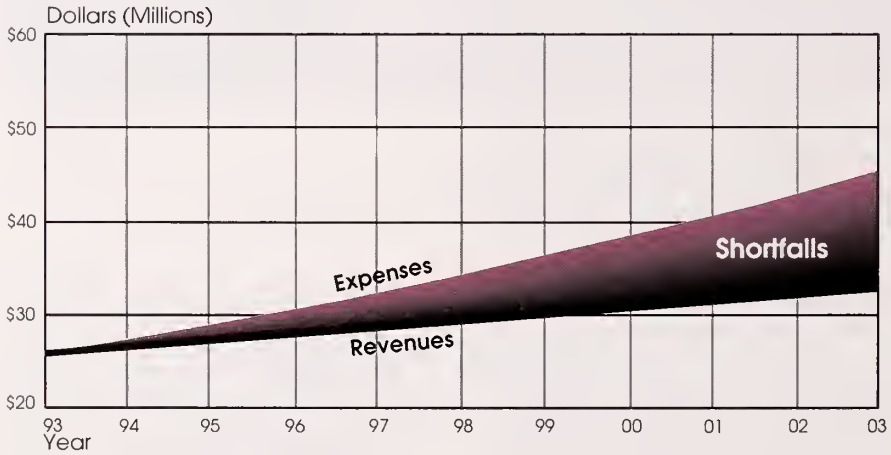
Over 3 million Virginians enjoy wildlife-related outdoor recreation, but only a little over half of them are aware that there is a state agency responsible for wildlife protection and management. VDGIF is responsible for all fish and wildlife in the state, including freshwater fish, reptiles, amphibians, songbirds, deer, bear and turkeys and has been working for these animals for over 75 years. Graphics by Pels.

Wildlife Agency Per Capita Funding Southeastern States, 1990-1991



Virginia's expenditures on natural resources and environmental programs administered through VDGIF are extremely low compared to other Southeastern states. Source: VDGIF, 1992.

Shortfall Projected to 2003
VDGIF Revenues Versus Expenses



By the year 2003, with our present funding structure, computer projections reveal that VDGIF will not be able to meet its responsibilities, including public demands for its programs and services. Source: VDGIF, 1992. Graphics by Pels.

Brook trout, photo by M.L. Giovannetti

depends on hunters and anglers to pay for its wildlife conservation activities. In the states around Virginia, the cost of conserving and perpetuating fish and wildlife does not fall entirely on sportsmen. In those states everyone has a share in seeing to it that wildlife remains a viable resource.

There are now several animals that are endangered and dozens more that we suspect are headed to-

VDGIF Board of Directors Proposed Funding Sources

- state general funds for specific projects such as anadromous fish passage and hydrilla control
- funds generated from the watercraft sales and use tax
- funds generated by a percentage of sales tax paid on outdoor recreational equipment
- specific license increases
- facilities use permits which would allow all people who use Department facilities to contribute to their maintenance

Sarah White

If the above proposed funding sources are approved, VDGIF will be able to proceed on projects such as breaching dams (like the successful Williams Dam notch ***(above)*** *accomplished in Richmond), which will allow species such as shad and striped bass to reach their historic spawning areas. Other species, such as the brook trout* ***(above left)*** *and other native fishes, will also benefit from proposed funding of our environmental watchdog efforts.*

ward eventual extinction. Without a change in the way Virginians pay for the work on these endangered species and fish and wildlife in general, much of what we now take for granted may just not be there in the future.

The Department has carefully developed a program to meet the needs of most Virginians and the wildlife they treasure. This plan includes you…it's a vision that invites you to share in stewardship and conservation efforts.

The VDGIF Board of Directors has identified five sources of additional funding they believe will begin to make our vision a reality. These include: money from the state's general fund for specific projects such as anadromous fish passage and hydrilla control; funds generated by the watercraft sales and use tax; a percent of the sales tax paid on outdoor recreational equipment; some specific license increases and a facilities use permit which would allow more people who use Department facilities to contribute to their maintenance.

Maintaining wildlife resources for the future requires a new, more diversified funding strategy. This is our first step. VDGIF needs your help to make this vision a reality.

Lee Walker

Sarah White

Charting our Course: Vision 2003

It is becoming popular for us baby boomers to spend a lot of time thinking about "the long haul" or "What will I be doing in 10, 15, or 20 years?" Well, the Virginia Department of Game and Inland Fisheries (VDGIF) has been asking these kinds of questions for several years. Most recently, the clash between ever expanding demand for resources and services and the lack of dollars to meet these demands has caused the VDGIF Board of Directors and its staff to take a long hard look at what the future will look like in 10 years.

Recently, the Board of Directors requested Department staff to evaluate the present status of the Department's programs for wildlife, fish and boating and to project what its needs and issues will be in 2003. After being reviewed and commented on by the public (with over 3000 copies of the initial draft distributed), *"2003: A Vision for the Future of Fish, Wildlife & Boating Programs in Virginia"* (*Vision 2003*) is now complete.

The evaluations in this report were based on some documented trends that will affect what and how the Department conducts its affairs.

Some of these major trends we noted include:

- *The population of the state will continue to grow, particularly in urban/suburban areas.*
- *Demand for protection of the environment and wildlife will continue to be a high priority.*
- *Enforcement of laws protecting the environment will become a higher priority.*
- *Demand for educational programs on wildlife, environment and safety will increase.*
- *Private ownership of powered and non-powered boats will continue to grow.*
- *Traditional game wildlife and fish programs will be maintained for Virginia's sportsmen, and expanded where possible.*

The *Vision 2003* document clearly articulates the continuing evolution of VDGIF's wildlife, fish and boating programs. The agency will focus on total fish and wildlife management responsibilities, with the goal of conserving and improving total ecosystems and maintaining wildlife diversity. While hunting

and fishing will continue to be important, the public will increasingly value wildlife for its aesthetic and ecological worth.

To address these trends, the Department does not need to begin any new programs. It currently has the program framework in place for addressing its responsibilities in the future. VDGIF is aware of the public's growing expectation for programs that address broader fish and wildlife management issues.

Why, however, should the Department become involved in these broader issues? Shouldn't VDGIF "stick to the knitting" and concentrate on game wildlife and fish?

The mission for the Department has always been for all wildlife species. During the first 50 or more years of the agency's existence, those wildlife that were traditionally hunted and fished were those that needed the most attention. The populations of these species had been depleted, and only through biologically sound management were they successfully restored. The hunters and anglers were also the group that taxed themselves and provided the resources necessary for fish and wildlife recovery.

Recreational utilization of wildlife is still a legitimate and economically important activity. However, all fish and wildlife, game and nongame, are being threatened by human-induced modifications to the natural environment. The Department must turn to these larger issues threatening all wildlife.

The public demand for the protection and sustainable use of our fish and wildlife resources is clear. Just a sampling of the comments received from the public review of the *Vision 2003* document shows the strength and breadth of support for the programs from the public:

"There is no doubt that [Vision 2003's] basic premise is sound, that we are now a nation of urbanites with very tenuous understanding of natural systems and how they work. Further, that human population growth and consequent stresses on [nature] will continue to create great demands for programs to foster wildlife.... Any reshaping of the Department rests on this understanding and its implicit challenge. ...In general, I think the outline of a plan is sound in that it reflects what the public will need

Lynda Richardson

Sue Clay

Emily Pels

Since 1916, VDGIF has shouldered the responsibility for the welfare of the state's fish and wildlife and public enjoyment of them.

Recently, we have initiated programs to restore striped bass to the Chesapeake Bay ***(opposite, far top left)*** *and shad to their historic river systems* ***(opposite, bottom far left)****. We have increased our understanding of nongame species, such as painted turtles* ***(left)****. We have developed programs to monitor the effects of pesticides* ***(opposite, right)*** *and other contaminants on wildlife, which recently produced data to support a statewide and national ban on the deadly pesticide Furadan. We have responded to the demand for quality fishing opportunities* ***(top)****, and environmental education for our youth* ***(left)****.*

But, VDGIF's funding base must be augmented to keep up with the public demand for these programs, particularly as our urban population increases, and threats to fish and wildlife multiply.

and expect in the way of a modern program of wildlife conservation." —John S. Gottschalk, Arlington, Former Director, U.S. Fish and Wildlife Service and Recent Past Chairman, Audubon Naturalist Society Conservation Committee.

"We recognize the need for the Department to broaden the scope of its activities and applaud the effort required to form this 'Vision' document. ..."

—Fred Austin, Lynchburg, President, Rim-Fire Hunt Club.

Our vision is of a Department of Wildlife Resources working closely with all Virginians to develop wildlife, fish and boating programs which:

- *protect, maintain and encourage the wildlife diversity of the state;*
- *respond to the demands for wildlife-related outdoor and boating recreation;*
- *provide for the enforcement of laws designed to protect fish and wildlife, their habitats and provide for safe and ethical use of natural resources;*
- *maintain educational programs to help Virginians understand and enjoy their wildlife resources;*
- *provide recreational access to the lands and waters of the state.*

The world around us will continue to change and evolve. Understanding and articulating how these changes may affect the Department of Game and Inland Fisheries is important in order to continue the efficient delivery of fish, wildlife, and boating programs to the citizens of the state. □

We Need Your Help

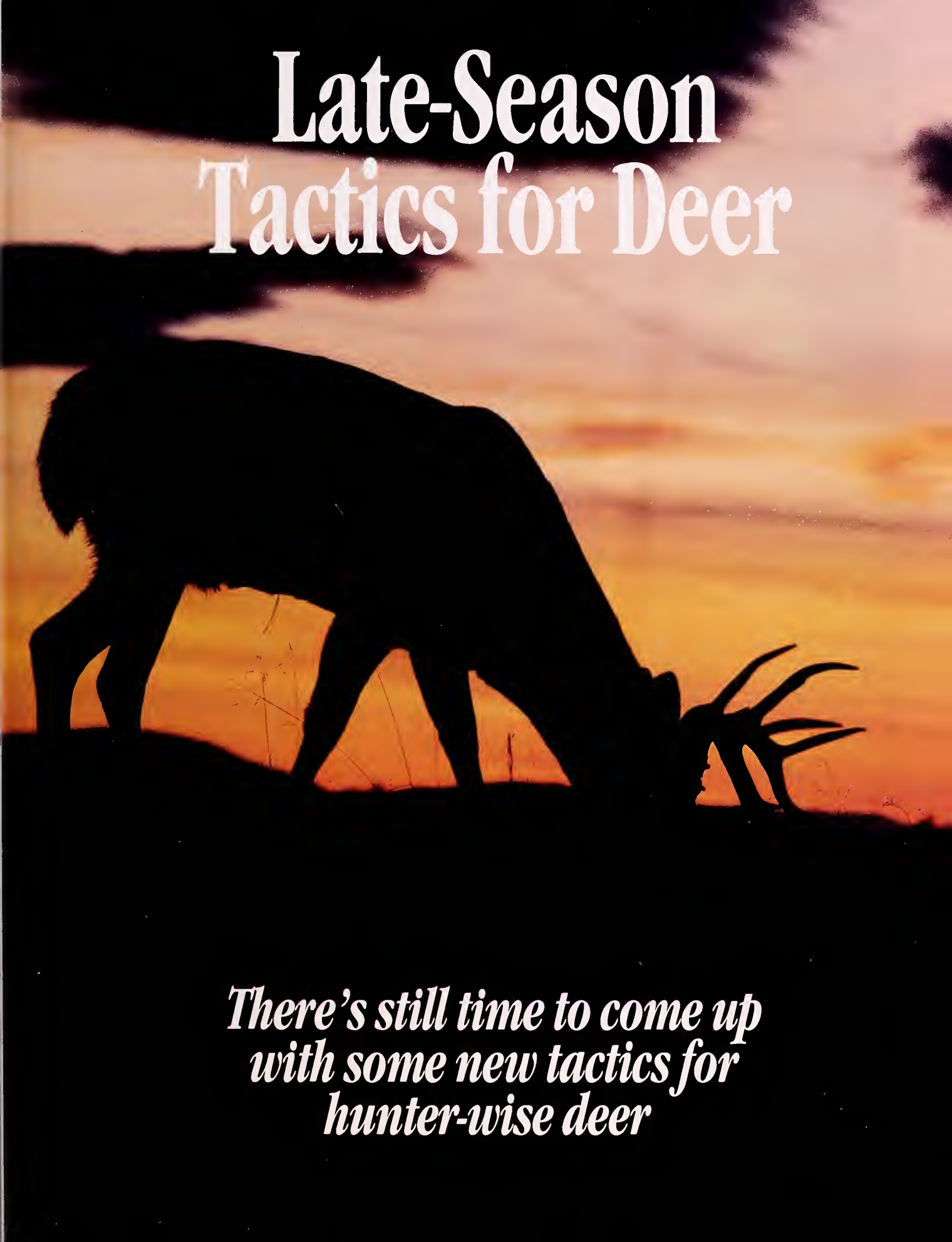
VDGIF's Board of Directors requests that you let members of the General Assembly know that you support efforts to broaden and strengthen managment programs and public services administered through VDGIF.

For more information on VDGIF's *Vision 2003* or proposed funding efforts, please contact:

Virginia Department of Game and Inland Fisheries
4040 W. Broad Street
Richmond, VA 23230-1104
Phone: 804/367-0787
367-9369

Dwight Dyke

Our Vision 2003 is the beginning of our future as a total wildlife agency committed to managing and perpetuating the biological diversity of the state and responding to public needs for outdoor recreation. Your help is needed to make this vision for the future a reality.



Late-Season Tactics for Deer

There's still time to come up with some new tactics for hunter-wise deer

White-tailed deer; photo by Bill Lea

Page 27: White-tailed deer; photo by Steve M. Eberhardt. ***Opposite:*** *Pursuing big bucks late in the season requires a change in tactics.*

by Don Shumaker

The two trophy bucks were first seen in late December, just a week short of New Year's. It was one of those rare late winter days that gets warm enough to make a person wish he'd left the long-handled drawers and insulated boots back at camp. The snow that had fallen two days before was rapidly melting, the creeks were rising from the runoff and I had to slowly pick my way toward an old wood's road that bordered a huge beaver swamp. An ancient chestnut oak log provided me with a comfortable seat and a good view of both the old road and a portion of the swamp. Warm rays from the late afternoon sun nearly put me to sleep...and then I heard the two bucks splashing across the shallows of the beaver pond.

The lead buck was sporting one heck of a rack of horns. Twelve points or better and at least a 20" spread; good heavy horns. The buck that followed was not as big, but was a perfect 10 pointer as near as I could tell. The two deer stopped midway in the pond and the smaller buck began licking the other one around the face and horns! The distance was approximately 90 yards, too far for the Browning loaded with #1 buckshot. I developed a case of buck fever worse than any I'd experienced as a youngster as I watched and waited, hoping they would move closer.

The sun was sinking behind the oak bluffs when they decided to move out...away from me. As regal as elk, they sloshed upstream several yards and disappeared into a bamboo briar thicket. Although I was disappointed, my mind's photo file had cataloged a beautiful picture that can be recalled at any time for the rest of my life. And, I had located the bucks' daytime hideout with seven more hunting days left in deer season.

Although many deer hunters "hang it up" after the first week or two of hunting season, generally out of despair, the experienced and patient hunter has learned that some of the better hunting comes with Santa Claus and the New Year. There are several reasons for this, all of which are controlled and based upon the deer's instinct for survival.

Decrease In Food Supply

Given an average season, fall is a time of plenty for deer and other wildlife. Acorns, clover, grasses, cornfields and soybean fields offer unlimited supplies of forage for deer. As Old Man Winter approaches, farmers harvest crops, cold weather stops the growth of grasses and legumes, and the supply of acorns begins to dwindle. Whereas in the fall the deer could move freely in about any direction and find ample nourishment, the coming of winter creates conditions that force deer to go to more specific areas where food can be found. Thus, the deer become more plentiful in concentrated areas. They must have food and cover to survive. The savvy hunter will locate areas that supply deer with food in late winter and hunt these areas exclusively. He or she realizes that a deer stand that was found to be productive during the rut or when the crops were unharvested can be as unproductive as a shopping mall parking lot in late December and early January.

What do deer eat during the lean times? Well, for starters they will root and paw through fallen oak leaves in search of hidden acorns (if there was a mast crop). Around old home places and creek bottoms, there will often be large honeysuckle patches. Deer really go to these during deep snows, since the vines are growing up and off the ground and are not covered by snow. They also will feed around pastures and hayfields that have any decent forage left. The farmer's cornpicker that has malfunctioned and missed quite a few ears of corn will yield up some quality food for resourceful deer. And, they will feed on the tips and buds found on young growths of brush in cutover tracts of timberland.

In times when we have experienced little or no mast crop in the area where I hunt in Buckingham County, deer have lived off of grasses, brush tips and honeysuckle during the entire winter. My brother Ben and I observed that deer had

taken to eating periwinkle that grew profusely around several old house places. They never touch the stuff when other sources of food are available. But that season, these patches of periwinkle provided good and productive hunting stands. The successful late-season hunter will constantly be on the lookout for these out-of-the-way places where deer will go to find food.

Lloyd B. Hill

Bill Lea

Hunting Pressure

After more than a month of being hounded, shot at and pushed, deer east of the Blue Ridge become spooky. You won't see many, if any, deer feeding in the fields before dark, and you won't see many deer (including does) close to roads. Their instinct for survival has shifted to high gear and has taught them to avoid areas where people are seen, shots are fired or truck doors are being constantly slammed. A blaring CB radio will send even the least-educated deer scurrying for the big swamps and pine thickets.

Rarely will you find the trophy class bucks in areas that are hunted hard and regularly after the first two weeks of deer season. They will move to the hard to reach, out-of-the-way places such as beaver swamps, marshes, brush and briar thickets and thick pines, the type of terrain that the average hunter will walk around or avoid completely.

Now, these wallhanger types will go wherever necessary to feed at night, but seldom will you see them moving before full darkness. They have learned that darkness provides safety. With the exception of lightly hunted areas, the customary method of stand hunting early in the morning and until near dark at night will not be as productive as it was early in the season or during the rut.

I have observed in recent years that where deer are run with hounds, they will often abandon road crossings that have been used for years. This change does not apply to bucks only; the does and younger deer soon learn to avoid the road crossings. Instead of crossing the road, they will run in circles in the thickest vegetation available. The hounds have one heck of a time trying to run them out into more open areas or across a road.

Much of Virginia's hunting land that was once covered with hardwoods has succumbed to timber cutting operations and been replaced with briar, brush and dense pine thickets. The deer have adapted very well to these changes in their environment. And they seek and find safety in these ever-growing number of "jungles."

Knowledgeable deer hunters have learned that by late season, deer will be found in larger numbers in less space than during the early part of the season. The animals have been forced into a smaller range or territory due to food supply and the necessity of seeking cover. The hunter can then concentrate his or her efforts on more deer while covering less territory than in the earlier part of the season. Now let's take a look at some of the methods used to harvest late-season deer.

Stalking and Still Hunting

The brilliant January morning sun appeared to be stuck or hung right at the top of an old stand of long needle pines as I eased as quietly as possible through a narrow thicket of mixed briars, broomstraw and red cedars. The thicket was bordered on the right by a deep stream dammed up by beavers, and on the left by a plowed cornfield. It was cold. The thermometer had registered a low 11 degrees when I left home half an hour earlier. Frost-coated broomstraw snapped like dry pine branches when I goofed and placed my size 10 boot in the wrong place. I froze and waited. Moisture from my breath was turning to ice on my beard.

Less than a minute had passed when the huge, heavy antlered buck burst from his bedding area directly in front of me. The problem was that there was a 15-20-foot cedar tree between the deer and me. I recovered from shock and quickly sidestepped to my left and sighted in on the buck. The gun belted me a good one in the shoulder, the deer went down and I knew that I was looking at the largest whitetail I'd ever shot in 20 years of hunting. The magnificent buck sported 14 points and a 21-inch spread. I blamed my trembling hands and shaky legs on the cold as I began to field dress the deer.

Although I grew up with a dog-hunting family and hunt club, stalking and still hunting is my favorite method of hunting deer during any part of the season. Oh, I still get a charge when I hear a good pack of

hounds in hot pursuit, whether they be running deer, rabbits, fox, bear or raccoons. But, the big bucks tend to seek a safe haven when the gunshots echo through the woods, the hounds run constantly, and the pickups pound the back roads with a vengeance. The only time a trophy buck drops his guard once this racket starts is when the rut is still on. But that's an old story. Throughout history we can cite hundreds of examples when males have literally lost their heads while pursuing members of the opposite sex.

I hunt for late-season bucks in places that are either darn near inaccessible, or places that are right up under people's noses but never hunted. Beaver swamps are good examples of inaccessible places—not many deer hunters wear hip boots or chest waders. I remember a nice buck that I took out of a huge beaver flow that was bordered on one side by a housing development and on the other by a tract of land that was hunted constantly. To escape the pressure, the wise old buck took to the swamp before daylight, laid up on a 6'x8' piece of dry ground in the middle, and never left it until some time after dark. While trapping the swamp, I jumped the deer several times in the same location. In early January I received permission from the landowner to hunt. On a frosty morning I put on my hipboots, traded my trapping basket for the Browning, and had my deer before noon.

Another trophy buck I remember vividly hid out in a one-half acre patch of briars adjacent to the workshop on a country club within five miles of downtown Richmond! I never did get a crack at him; the golf course superintendent tended to get nervous every time I asked if I could bring my gun while checking muskrat traps in the fairway ponds.

Once I locate an area where I either know or think there is a buck using it for a hideaway, I scout the area closely, looking for old beds, droppings and trails leading to and from the area. Sometimes, well-defined trails will not be found, in which case I will study the terrain and try to figure out the most likely spots that will provide the deer easy access to and from the hiding/bedding area. These locations will provide me with a place to sit for the first hour of daylight and the last hour before darkness.

It's wise to pick the exact spot where you plan to sit, stand or hang a tree stand before you actually hunt the area. Factors such as wind and good fields of fire should be considered. If I intend to hunt from the ground, I want enough background (trees, brush, rocks, etc.) behind me to break my outline, and it doesn't hurt to have a light screen of brush in front of you to help conceal any movements you make while waiting. Check wind direction to be sure the deer will not scent you. When approaching areas you intend to hunt, leave your vehicle well away from the area and approach your area quietly!

During the period from one hour after sunrise until an hour or so before dark, my method of hunting is to slowly and silently as possible, stalk through the areas I think the deer has bedded down in. I do not wish to seem a braggart, but I will say that I have harvested quite a few deer using this method of hunting.

I enter an area with the wind in my face and move *slowly*, take two or three steps and wait, constantly looking and listening. I may wait 30 seconds or several minutes before I move again.

Soft clothing, such as wool, cotton or flannel should be worn to eliminate noises made when easing through thick brush, limbs and briars. The deer may hear, see or smell you well before you see them, but will often sit tight in the hopes that you will walk on past them.

Big bucks are notorious for pulling this stunt. But when you stop and stand, this will make them them nervous and cause them to bolt. Always have your shotgun or rifle ready to get off a quick shot, for when the action comes, it's generally over in seconds.

Man and Dog Drives

Man and dog drives are often used to "root" deer out of the thickets and hiding places, especially in areas of several acres or more. Typically, the idea is to quietly as possible let the standers surround the area and then the drivers (with or without dogs) crisscross the area whooping and stomping the thickets.

Many deer are harvested each year using this method. But, the most important factor to consider is safety! Make sure that each hunter knows where the standers on both sides of him are located, and that they do not shoot towards each other when the deer burst from the thickets. Nor should they shoot in the direction of the drivers.

One way of improving chances of seeing and harvesting deer in the larger thickets is to place tree stands at strategic locations to allow the hunter to see over the brush and thick vegetation. Firing lanes can be cut for the stander in order to get a clearer, better shot. The hunter can spot moving deer much better from his elevated position, and get ready to shoot and fire quickly when the deer moves into the cleared firing lane. It's important to check with the landowner before putting up permanent tree stands or do any major cutting, though.

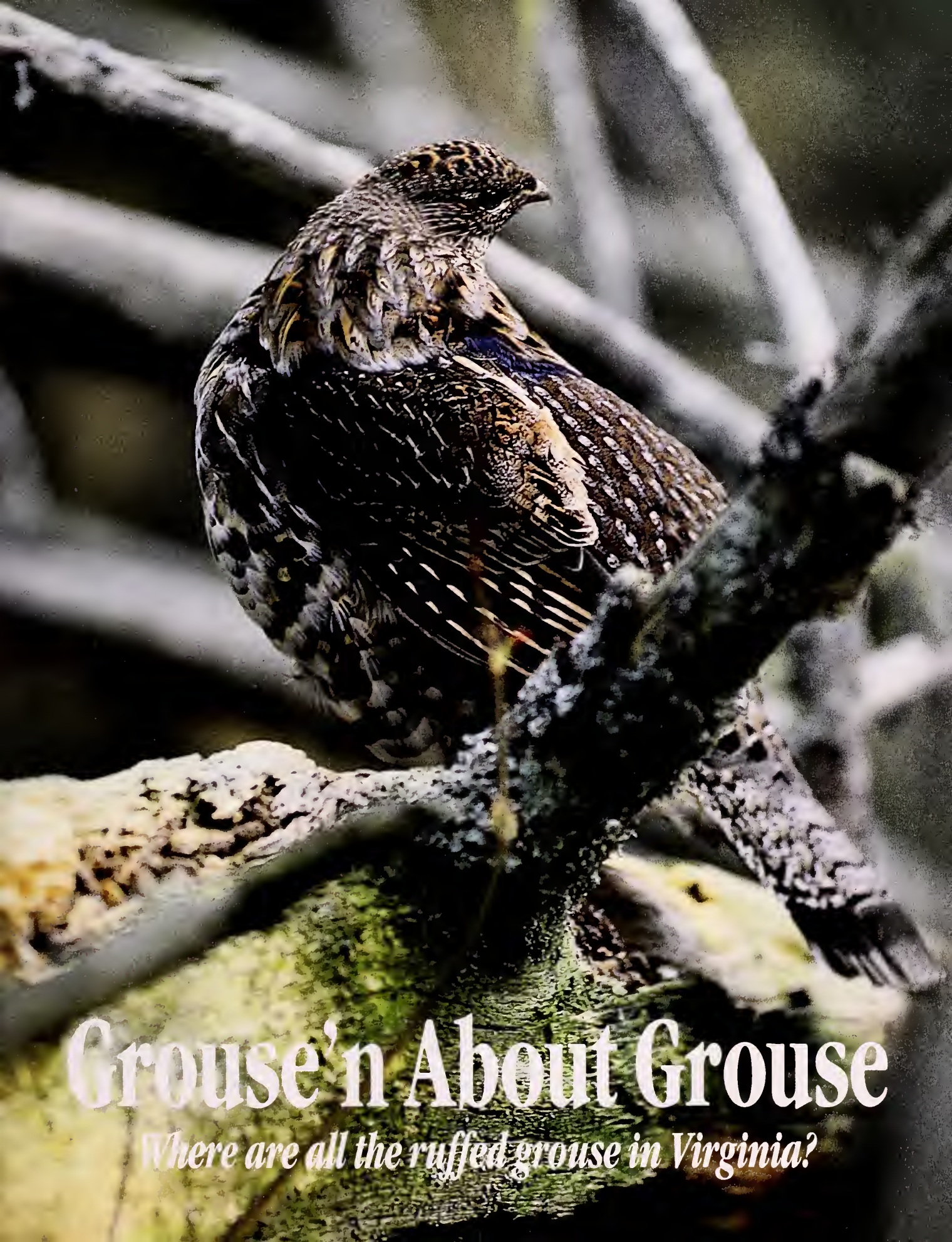
For many hunters, late-season deer hunting offers another attraction...doe season! This is a good time to get meat for the freezer or help a youngster get a first deer. And, by harvesting does, the hunters help control deer herds that are beginning to cause problems in many areas across the Old Dominion.

There are other little bonuses that come with the tail end of deer season, such as the gathering of friends to celebrate the holidays with after tromping the woods all day, and the enjoyment of sitting by the woodstove swapping hunting tales.

Mistakes may have been made already this season that allowed the biggest of all bucks to get away...so now is the time to make the last few weeks count! ☐

Don Shumaker is a big-game guide and freelance writer from Buckingham County.

Ruffed grouse: photo by Maslowski



Grouse'n About Grouse

Where are all the ruffed grouse in Virginia?

by David Hewitt

It was a cool clear day in early February, a day when all die-hard ruffed grouse enthusiasts feel they must be in the field for a final tromp through the briars. My German shorthaired pointer and I were driven by that very urge as we made our way through the thick second growth of a 20-year-old burn in the mountains of southwestern Virginia. We had flushed grouse from this area in the past and hoped to do the same that day. Even though the dog was young and just finishing his first year in the field, he knew the smell of grouse. Before long, his nose dropped close to the ground, he quickened his pace and began changing directions erratically. He smelled a bird. I hurried toward him, drawing near as the grouse flushed. Color and noise burst out of the leaf litter, rose 15 feet above the ground, then rocketed down the steep hill out of sight. I stood transfixed with the rust red image of the grouse, tail flared, as it had banked away from me, catching the brilliant winter light.

Instead of muttering about the one that got away, shouldering my gun and heading home, I walked quickly to the spot where the grouse had materialized. I praised my dog who was scampering about, nose to the ground, soaking up the scent of the departed grouse. It was time to get to work. A small red flag was placed at the point where the grouse had flushed, paper bags and a tape measure were produced from my pack, and I began to gather data which I hoped would tell me more about ruffed grouse in Virginia.

Anyone who has spent time in Virginia's woods probably has special memories of ruffed grouse. To many, spring is complete only when they hear the deep and quickening *thump, thump, thum, thum, th, th, th,* of a male grouse drumming. Many a hiker has been made to feel wonderfully alive from the adrenaline rush after flushing a grouse underfoot. And there are those truly lucky folks who have watched a hen grouse cautiously bring her newly hatched brood into a small forest clearing to feed.

However, as anyone who has gone looking specifically for ruffed grouse in Virginia knows, they are not particularly abundant. Anyone who has hunted the birds is sure to start "grousing" about how much walking must be done to flush a couple of birds. It is these relatively low numbers of grouse in the Southeast that have interested Dr. Roy Kirkpatrick and a series of students at Virginia Tech who have been studying ruffed grouse in Virginia for nearly 10 years.

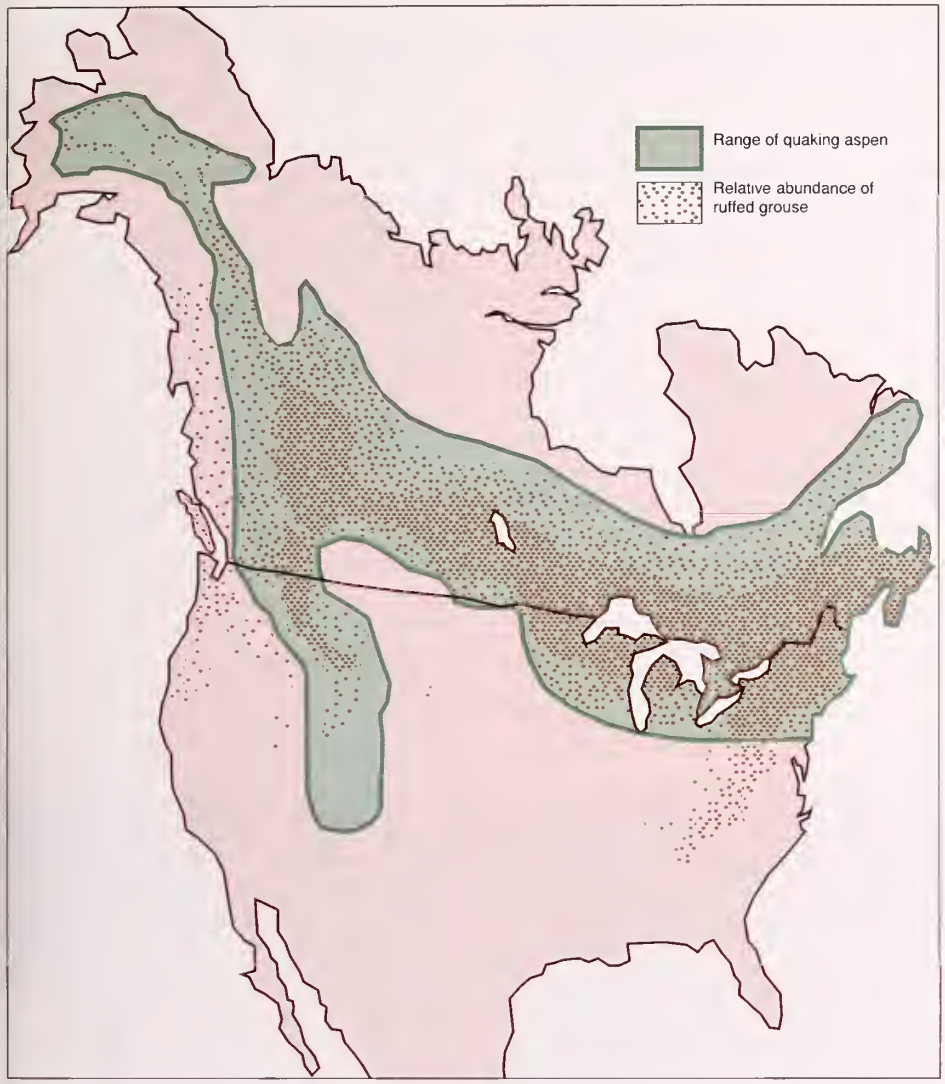
Red fox, photo by Bill Lea

Grouse nest, photo by Rob Simpson

Two theories about low grouse numbers in the Southeast are that nest predation and the lack of winter food are limiting their numbers. So far, however, studies are not showing that nest predation is a limiting factor.

Ruffed grouse; photo by Lynda Richardson

The ruffed grouse has one of the largest ranges of any nonmigratory bird in North America. Its range extends across the northern part of our continent from Alaska to Maine, dipping south in the Rocky and Appalachian Mountains. The mountains of western Virginia are near the southern end of the species' range, which is in northern Georgia and Alabama. The density of ruffed grouse is greatest in northern parts of its range, especially the upper midwest and northeastern United States, and decreases as one proceeds south. Many theorize about why ruffed grouse are not as abundant in Vir-



Quaking aspen is an important winter food item for grouse, and they are often found in higher densities where quaking aspen is found.

Aspen woods; photo by Steve Maslowski

Ruffed grouse; photo by Gregory K. Scott

ginia as they are further north, and two theories are particularly common. The first of these is that nest predation is greater in Virginia and the second is that winter food resources are limiting.

The theory that nest predation is the cause of Virginia's low grouse populations is based on two related ideas. First is the thought that nest predators are both more abundant both in numbers and kind in the South. The second is the idea that nest predation is density-dependent. Density-dependence means that the proportion of nests broken up by predators depends on the number of nests in an area, so that a greater proportion of nests are eaten when nest densities are high than when they are low. In this way, if the grouse population begins to increase, a greater proportion of the nests are eaten by predators and the population is forced back to its previous level. Conversely, if the grouse population decreases, the proportion of nests found by predators drops, giving the grouse population a chance to recover.

Density-dependence is a familiar concept in many aspects of ecology and the study of animal populations. An example of density-depen-

Steve Maslowski

Rob Simpson

Grouse compete with other mammals for choice foods such as greenbriar ***(top)*** *and grapes* ***(below)****, and by the time winter descends, these items are in short supply. Turning to mountain laurel* ***(above)*** *and other evergreen plants may help grouse survive, but because of the toxicity of these plants, they can only provide grouse with up to 50% of their diet.*

dent "predation" can be seen in the behavior of grouse hunters. If grouse populations are high and hunters are flushing a lot of birds, they are likely to go hunting more often and thereby harvest a greater proportion of the grouse population. On the other hand, if grouse populations are low and hunters see few birds, they are likely to go hunting fewer times during the season. In this way, hunting pressure is dependent on the density of grouse.

It makes sense that *if* the South has more nest predators and *if* nest predation is density-dependent, then a lower density of grouse is likely to result. What about these "if's"?

Areas of high grouse densities in the North have nearly the same number of bird and mammal nest predator species that we have in Virginia. Various estimates of abundance show little difference in numbers of mammal and bird nest predators. The only possible differences are in crows, which are more abundant in the Southeast, and snakes, which we have not investigated.

What about the density-dependent "if"? A number of studies have shown that nest predation can be density-dependent, but these studies have all used very high nest densities similar to those of colonial nesting birds, such as seagulls. Few, if any, studies have used the low densities expected for ruffed grouse in Virginia. Furthermore, these studies were mostly conducted in fields or along the edges of lakes where the habitat is not very diverse. A Virginia forest is much more diverse and it is unlikely that predators would behave the same way in our forests as they would in simpler habitat. Studies relevant to Virginia grouse have been needed.

The problem with studying grouse nest predation in the Southeast is that it is difficult to find enough nests. For this reason, we conducted a study in which we made nests using small brown chicken eggs. These nests were placed in the Jefferson National Forest at two different densities, with 20 nests on either 60 or 240 acres. We found no difference in the percentage of nests broken up by predators on either area. Furthermore, only 20% of the nests were preyed upon after 20 days of exposure. This is a low level of predation compared to similar studies done elsewhere, even for studies done where ruffed grouse densities are high. These results suggest that nest predation may not be the primary factor limiting grouse in Virginia.

Rob Simpson

So, if nest predation does not offer a strong case in limiting grouse, perhaps winter food resources may. At first glance, this idea seems ridiculous since areas across the northern part of the United States that have high grouse densities also have extremely cold winters and deep snows that may cover grouse food. By contrast, Virginia rarely has significant amounts of snow on the ground for more than a couple weeks. How do ruffed grouse in the North feed when the ground is covered with snow?

The answer is they do not feed on the ground. They feed on buds and catkins in the tops of trees such as birch, cherry, and especially quaking aspen. In fact, ruffed grouse densities drop off significantly in southern Pennsylvania, at about the southern extent of quaking aspen.

Since Virginia's woods have relatively little birch and cherry, and no quaking aspen, what do our grouse do during the winter? The first thing they do is look for mast; either soft mast, such as greenbriar, grape, and dogwood fruits, or hard mast, such as acorns. Other winter favorites of Virginia grouse are herbaceous plants, such as clover and cinquefoil, and leaves of greenbriar and honeysuckle.

So what's the problem? Virginia grouse appear to have a whole smorgasbord to choose from.

During early winter there likely is no problem. Most grouse can do quite well. But as mid-February comes around, the story changes. Flocks of wintering songbirds have been eating berries all winter. Deer, squirrels, and turkey have been devouring or stashing acorns. Rabbits and other mammals have been competing for the grouse's winter roughage—the herbaceous plants mentioned above. In fact, if you were to go into the woods within a month or two of reading this article,

you likely would be hard-pressed to find significant amounts of these high-quality foods. Choices are dwindling.

Anyone who knows much about ruffed grouse or who has looked in the crop of a grouse killed in February knows there is a large category of grouse food we have not considered. This is the group of evergreen plants, such as mountain laurel, trailing arbutus, and Christmas hollyfern. While it may not be possible to find many nuts or herbaceous leaves in the woods during February and March, no one could argue that mountain laurel is in short supply. Vast stretches of mountain laurel can be found through most of Virginia's mountains. So, again, what's the problem?

The problem arises when the grouse eat these evergreen plants. These plants have high levels of natural toxins designed to keep animals from eating them. Mountain laurel and other evergreen plants are toxic to many domestic animals and to people. Ruffed grouse, however, have evolved ways to handle moderate amounts of these poisons. But even grouse, if they try to eat a lot of mountain laurel, will get sick and could poison themselves. Captive grouse at Virginia Tech can eat a diet with up to 40% mountain laurel and show no obvious detrimental effects. As the amount of mountain laurel increases to 50%, grouse are unable to maintain their body weight, because they will quit eating the diet before they become sick. So, on diets with high levels of evergreen plants, grouse cannot eat enough to meet their nutritional requirements without poisoning themselves. Christmas hollyfern appears slightly more toxic than mountain laurel since captive grouse lose weight on diets of 40% Christmas hollyfern.

The bottom line is that grouse cannot live strictly on these super-abundant evergreen plants. They must dilute these toxic plants with higher quality forages, such as mast and herbaceous leaves. The food habits of wild grouse throughout the Southeast support this idea, since their diets rarely contain more than 40% evergreen plants.

So, grouse in Virginia will soon be entering a period when they must strike a balance between hard-to-find mast and herbaceous leaves and super-abundant evergreen leaves. Late winter finds the grouse spending more and more time looking for dwindling amounts of high-quality forage. Studies done through Virginia Tech show that wild grouse in western Virginia are active about half of the daylight hours. By contrast, northern ruffed grouse feeding on aspen appear to be active only for about 30 minutes at sunrise and 30 minutes at sunset. Northern grouse can afford these low levels of activity because aspen buds and catkins are usually very abundant and are quite large, which means that they can be eaten at a very fast rate. In fact, grouse eating aspen buds can consume their food at *least three times faster* than grouse eating leaves, even if the leaves are very abundant. The very low densities of forage during the winter in Virginia will likely increase this difference even more. Thus, Virginia grouse trying to live on leaves are condemned to spending a lot of time wandering about eating.

A nest predation study conducted by VA Tech indicates that nest predation may not be as excessive as once supposed, though no studies have yet documented the effect of winter predation on grouse in Virginia.
Above: *Grouse on nest; photo by Stephen Maslowski.*

Greater activity means that the grouse are not tucked safely in a roost, but are out moving around where they might be more likely to become a meal for a lucky predator or hard-working hunter. Greater levels of activity also increase the amount of energy that grouse burn and thus the amount of food they have to eat. This turns into double jeopardy, since the whole reason they are more active to begin with is that food is hard to find.

While it appears that winter predation could limit Virginia's grouse, no one has studied this yet, so we cannot say for sure. It is possible that predation rates are *not* excessive. Instead, poor winter diets may be causing a decline in the grouse's body condition, making the birds more susceptible to disease or decreasing the number of eggs or healthy chicks produced the following spring. Obviously, there is much yet to learn about Virginia's ruffed grouse.

The plot I measured that beautiful day in February had only a few chestnut oak acorns, which were probably too large for a grouse to swallow. The entire hillside where that grouse was flushed had precious few herbaceous plants, but it did have enough grape, greenbriar and white oaks to support at least a few birds. I flushed no more grouse that day, even though I continued searching for several more hours.

Don't get me wrong. I'm not complaining. Benefits from grouse flushes are not to be measured in quantity, but in terms of excitement and splendor. You need only put up a few of Virginia's rust-red birds to realize this. So now, as winter deepens and grouse food becomes scarcer, I wonder, who has a better reason to grouse, the birds or us? □

David Hewitt is a graduate student in Fisheries & Wildlife Sciences at VA Tech.

Put Swimming Fish on your walls!

The Virginia Department of Game and Inland Fisheries has produced two full-color fish identification posters. Just released is a 21 3/4" X 34" poster of 24 species of saltwater fish in Virginia. The second is a 21" X 36" poster of 23 freshwater game fish in Virginia. Each is available for only $8! Specify which poster you'd like and send your check (made payable to the Treasurer of Virginia) to: Fish Poster, VDGIF, P.O. Box 11104, Richmond, VA 23230-1104.

Give Wildlife A Ride

Why not show your concern for wildlife by ordering a Wildlife Conservationist license plate from the Department of Motor Vehicles? Choose either the largemouth bass or mallard license plate featured here, and help generate money to help the Virginia Department of Game and Inland Fisheries' fund wildlife conservation management and research projects. For ordering information, see gray card in this magazine.

Recipes

By Joan Cone

Wild Duck For Christmas

With today's reduced bag limits, you will want to take advantage of all the ducks you shoot. While mallards, wood ducks, black ducks and other puddle ducks are generally considered the best at table, ringnecks, scaup and other divers are very good too.

Louise Scott of Miami, Florida sent me the marvelous duck recipe which appears in the menu below. Louise and her husband are active in Ducks Unlimited, and they always have plenty of waterfowl for developing new recipes.

MENU

Korean Duck Barbecue
Microwave Pecan-Lemon Wild Rice
Celery Casserole
Escarole And Orange Salad
Cranberry Butter Cake

Korean Duck Barbecue

Boned breasts from 2 large or 4 small ducks, cut into chunks
1 cup salad oil
⅔ cup sugar
6 tablespoons soy sauce
1 tablespoon flour
1 small onion, cut into pieces
1 clove garlic
2 tablespoons sesame seeds, toasted

Place oil, sugar, soy sauce, flour, onion pieces and garlic in a blender or processor and process until smooth. Pour marinade into a glass bowl, cover and refrigerate for 6 hours. Add duck breast chunks to marinade and refrigerate, covered, for 8 hours or overnight. To cook, place duck chunks on skewers and either grill or broil until medium rare or longer if desired. Sprinkle with toasted sesame seeds and serve. Serves 4.

Microwave Pecan-Lemon Wild Rice

Pre-Soak Method

1. Wash 1 cup pure wild rice under cold, flowing water.
2. Stir rice into 3 cups boiling water.
3. Parboil for 5 minutes only.
4. Remove from heat. Let soak in the same water, covered, for 1 hour.
5. Drain, rinse and cook as directed in following recipe.

Pecan-Lemon Wild Rice

1 cup pre-soaked wild rice
2 cups chicken broth
1½ tablespoons lemon rind
1 tablespoon fresh lemon juice
1 tablespoon margarine or butter
½ cup chopped pecans, toasted
¼ cup chopped fresh parsley

Combine first 5 ingredients in a deep 2-quart covered casserole. Microwave on High for 5 minutes. Reduce power to Medium-Low (30%) and microwave for 45 minutes or until all liquid is absorbed. Add toasted pecans and parsley and mix with fork. Makes 6 to 8 servings.

Celery Casserole

4 cups celery, cut in 1-inch slices
Water
1 can (5 ozs.) sliced water chestnuts, drained
1 can (10¾ ozs.) cream of mushroom soup
¼ cup pimiento, diced
½ cup soft bread crumbs
½ cup slivered almonds, toasted
2 tablespoons margarine or butter, melted

Cook celery in small amount of boiling salted water about 6 minutes; drain. Mix celery, chestnuts, chicken soup and pimiento in a 1-quart casserole. Toss bread crumbs and almonds in margarine; sprinkle over casserole. Bake in a 350 degree oven for 35 minutes or until brown and bubbly. Makes 6 servings.

Escarole and Orange Salad

Vinaigrette

¼ cup plus 2 tablespoons olive oil
2 tablespoons red wine vinegar
¼ teaspoon Dijon mustard
⅛ teaspoon ground cloves

Whisk all ingredients together in small bowl. Season with salt and pepper. This can be prepared one day ahead. Cover and refrigerate.

Salad

1 head escarole
2 seedless oranges

Trim outer leaves from escarole. Line 4 plates with tender inner leaves. Cut all skin and white pith from oranges. Thinly slice oranges. Arrange slices in overlapping pattern on lettuce. Drizzle salads with vinaigrette and serve.

Cranberry Butter Cake

Cake

1 package Pillsbury Plus Butter Recipe Cake Mix
⅓ cup oil
2 tablespoons frozen orange juice concentrate, thawed
1 can (16 ounces) jellied cranberry sauce, reserving 3 tablespoons for glaze
3 eggs

Glaze

¼ cup firmly packed brown sugar
3 tablespoons reserved jellied cranberry sauce
3 tablespoons frozen orange juice concentrate, thawed
3 tablespoons margarine or butter

Heat oven to 350 degrees. Grease and flour a 12-cup fluted tube or a 10-inch tube pan. In a large bowl, combine all cake ingredients at low speed until moistened; beat 2 minutes at highest speed. Pour into prepared pan. Bake at 350 degrees for 35 to 45 minutes or until toothpick inserted in center comes out clean. In small saucepan, heat all glaze ingredients until well combined. Using long-tined fork, prick cake at ½-inch intervals; pour half of glaze over cake. Let stand 10 minutes; invert onto serving plate. Prick cake; spoon remaining glaze over cake. Serve warm or cool. Makes 16 servings. □

Photo TipS

By Lynda Richardson

A Photographer's Holiday Wish List

One can spend anywhere from a few to thousands of dollars when purchasing gift items for the photographer this season. From a card of lens tissue to the ultimate, ultrasound, autofocus telephoto, the selection is vast. So, to help you with purchases for the shutterbug on your holiday list, the following is a small sampling of gift ideas.

Costing just a few dollars, a *leader puller* is a must for every camera bag. When a roll of film gets rewound back into the cassette before you want it to, this small, silver-colored gadget can save the day by retrieving the leader. It takes a while to get the hang of one, but once you use it you'll never want to be without it. This item can be stored in a clear empty film can and easily stored in the pocket in your camera bag. A great "stocking stuffer!"

If you know someone who has a lot of slides or negatives to file, an inspirational gift might be *archival storage sheets*. The ones I use are from a line called Print File, which carries a variety of archival pages to hold any type of film in any size from 35mm to 4 X 5 sheets. Packages of pages can be purchased in lots of 25 or 100. A unit of 25 will cost around $8 and a box of 100 will be about $30.

Getting into the higher dollar range, I would strongly recommend purchasing a good quality *loupe* for your photographer. Used to view negatives or slides on a light table, this instrument is the *only* acceptable way of determining the sharpness of your images. I would recommend the magazine industry standard which is the Schneider Universal 4X Magnifier. Though you can purchase loupes for as little as $20, this magnifier is well worth the $120 it takes to bring one home.

Speaking of *light tables*, these items come in handy when sorting or viewing slides. There are a vast array of brands as well as prices for light boxes and they aren't cheap. You can pick up a light box from $50 to $1,000, with the average being about $200.When searching for a light box, make sure that it's big enough to view at least one slide or negative sheet (9 1/2" X 11 1/4") and that it has a 5000 Kelvin degree light source.

Books are one of my personal favorite gifts to give and receive and this year there are several gorgeous, new photography books available. *Brother Wolf...A Forgotten Promise* by famed wildlife photographer Jim Brandenburg, is a personal and spiritual look at man's long time relationship with the wolf. Woven with exquisite photographs of wolf encounters at his retreat in Minnesota, this touching book is a "must have" for those who treasure our relationships with wild creatures. It will run you about $40.

Okavango: Africa's Last Eden is another intensely beautiful, must have book photographed by renowned wildlife photographer Frans Lanting. With it's eye-catching pink cover, this artfully designed book will captivate you with imaginative African wildlife photographs of astounding color and execution. It costs around $45.

The Art of Photographing Nature ($30) is one of the most interesting "how to" books I've seen in a long time. Written by former Audubon picture editor, Martha Hill, and photographed by prominent nature photographer Art Wolfe, this book gives fabulous photo illustrations explaining composition, reading light, using color and so on. For the photographer who wants to improve, this is a book for you. ($30)

If you're having trouble finding a gift for the photographer on your list, just gather up a few of these items from my wish list. I guarantee you'll make their holiday season!

Happy Holidays. □

Lynda Richardson

Safety

by Col. William Antozzi, Boating Safety Officer

Guns On Board?

Many boaters ask about the legal implications of carrying firearms aboard boats.

Handguns, rifles or shotguns on small or medium-sized boats should not be concealed. They must be in plain view. On large vessels, including those considered a second home, also known as "live-aboard" vessels, firearms may be concealed just as might be done at home on land.

When guns are transported from home to boat and return, they must be in plain view such as on a car seat or on a rack, and should be unloaded. Some local ordinances require that they must be unloaded. If a passenger car is used, they would normally be locked in the car trunk.

It is illegal to use a rifle or handgun on a boat to fire over water at something on land, but a shotgun may be used (except for deer) for that purpose. Permission to shoot at land objects must be obtained from the local landowner.

There are legal jurisdictions, through which a boat might pass, that could have local ordinances applicable to the carrying and use of firearms. If plans include any appreciable amount of time spent in those jurisdictions, it might be wise to check.

Protection is one of the principal reasons advanced for having a firearm aboard and it certainly adds to peace of mind if boaters intend to sleep on board in strange places. If a vessel is tied to a pier or wharf, a handgun might suffice because any shooting would probably be done at close range. Being boarded at sea is a possibility, however, especially since drug running is so widespread. In that situation, the best weapon is a shotgun. Faced with a shotgun, intruders quickly realize the possible consequences of their intrusion and are likely to back off.

Another good reason for taking a shotgun is that port officials in foreign ports, such as Mexico, Canada or Caribbean ports, find a shotgun more acceptable than a rifle or a handgun. Shotguns can also be used for shooting flares.

Fishermen who pursue their sport in shark-infested waters complain that sharks will often attack large fishes which have been rendered helpless by fishing tackle and will attack right up to the side of the boat. Also, few fish are as dangerous as sharks being lifted aboard a boat. Large-bore pistols are the guns of choice in these situations.

There have been numerous reports as to how firearms have saved boaters. One of the most interesting was an attack on the vessel of Captain Joshua Slocum, the first person reported to have sailed alone around the world. Slocum was boarded by barefoot South American natives who were repelled by his rifle and carpet tacks strewn about the deck.

The appearance of a firearm apparently saved the two American occupants of the vessel Virginia-D, in a Caribbean incident. The Virginia-D came upon a large group of Haitians in a disabled vessel who were fleeing Haiti. They requested a tow and while the two vessels were close together, rigging the towline, there were covetous glances at their benefactors' vessel, accompanied by actions interpreted as threatening takeover. One of the Virginia-D's crew sensed the seriousness of the situation and produced a rifle which he placed in a conspicuous spot. The Haitians immediately lost interest in acquiring a better vessel.

Water, especially saltwater, is unkind to guns. Salt air is similarly a problem. Guns must be cleaned, lightly oiled and frequently disassembled for detailed inspection. Internal rust can ruin a gun. Vulnerable parts are spring coils, pin or bolt holes and various moisture traps. A thorough cleaning and oiling should follow any exposure to salty air or salt spray. Preventive measures include scope covers, a muzzle cover (even a small balloon is effective and can be fired through) and possibly a full-length plastic cover.

Ammunition should be kept in sealed containers. Corrosion can adversely affect reliability and if an advanced state of corrosion has been reached, the ammunition should not be used.

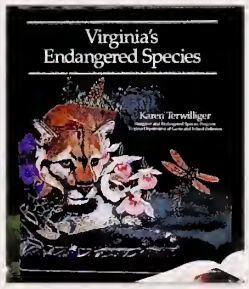
The dangers of firing over water are many. A ricocheting bullet can be deadly when it is deflected by water. The pitching and rolling of a vessel are adverse factors in firearm handling, but despite the hazards in using firearms aboard a vessel, if one should be needed in an emergency it should be remembered that policemen are rather scarce at sea.

Virginia Wildlife Gift Catalog

Virginia's Endangered Species

Produced by VDGIF along with other state resource agencies, this 675-page book with 229 color plates, 331 black and white figures, two appendices and three indices is the definitive guide for the nature lover in your family wanting to know about Virginia's rare plants, fish, reptiles, amphibians, mammals, invertebrates, and birds.

Available for $32.95 (softcover) or $59.95 (hardcover) plus 4.5 percent sales tax and $3.50 shipping and handling charges (per book) from: McDonald and Woodward Publishing Company, P.O. Box 10308, Blacksburg, VA 24062-0308. Phone: 703/951-9465.



Virginia Duck Stamp Print

Help wildlife and make a valuable investment at the same time...buy a 1993 Virginia Duck Stamp Print!

Funds generated from the sale of this year's Virginia Waterfowl Conservation Stamp and Print of black ducks by Bruce Miller will be used for the conservation of waterfowl in Virginia. This limited edition print is available from fine art galleries around the state or by contacting Sport'en Art in Sullivan, IL at 1-800-382-5723. Overall size: 12"X14."

Virginia Wildlife posters

Order any of the four full-color posters featured on this page (barred owl, white-tailed deer, wood duck, or Endangered Species) for $8 each. Just send your check made out to the Treasurer of Virginia and specify the number and kind of posters ordered to: Virginia Wildlife, Poster Offer, VDGIF, P.O. Box 11104, Richmond, VA 23230-1104.

Poster Specifications:
Endangered Species poster: 18" X 24"
Virginia Wildlife posters: 19 1/2" X 27 1/2"

Wear Your Support–
Buy a T-Shirt!

Support Virginia's Nongame and Endangered Species Program by wearing one of our brand-new beautiful t-shirts! Only $12 each, they're available in medium, large, and extra large only. Send your order in with a check made out to the Treasurer of Virginia to: T-Shirt Offer, VDGIF, Attn: Toni Harrison, P.O. Box 11104, Richmond, VA 23230-1104. Hurry, you still have time to wrap one up for Christmas!

Wrap Up Something *Wild* For The Holidays

This year, give Virginia Wildlife to all of your friends and introduce them to something wild! Plus, for a limited time only, you can take advantage of our special holiday deal to help you with your gift giving and your budget:

Order 10 or more subscriptions and pay only $6 for each gift! That's a savings of $40 over the regular price!

Use the gray card in this magazine for details, and start giving!

Another Sweet Deal From Virginia Wildlife...

Winter Comfort

by Bob Henley

Order Bob Henley's limited edition print of 950 entitled "Winter Comfort" for $45 each and get a one-year subscription to *Virginia Wildlife*— free!

See gray card in this magazine for details on ordering. But, hurry and order today! This offer is only good through December 31, 1993!

Preserving in bronze what we're losing in the wild

An Endangered Species Series by Turner Sculpture

Continuing to capture the essence of Virginia's endangered species in bronze, David Turner of Turner Sculpture has created the third in his Endangered Species Series to raise funds for Virginia's Nongame and Endangered Species Program.

Turning to the wind-swept beaches and mudflats of his native Eastern Shore, David has chosen to capture the spirit of the delicate, yet spritely piping plover in bronze. Perfectly camouflaged among the speckled beaches, the piping plover can disappear from view in an instant, blending into the landscape with the help of its sand-colored body, black collar, and a black nick of a crown between the eyes.

This federally endangered shorebird is teetering on the brink of extinction, and every year we hold our breath hoping to see signs of recovery. One-quarter of the East Coast piping plover population nests on the beaches of Virginia's barrier islands, struggling to increase its numbers amid the hardships of habitat loss, nest destruction, and predators hungry for a meal of eggs or tiny young.

Like the Northern flying squirrel (featured above) and the sold-out Bewick's wren sculpture, a limited edition of 200 piping plovers will be cast and sold solely to benefit Virginia's Nongame and Endangered Species Program, the program responsible for the management and protection of all the Commonwealth's rare and endangered wildlife. The money raised from the sale of the three sculptures will provide the program with over 1/10th of its present operating budget.

Each sculpture has a purchase price of $325. Turner Sculpture will receive $175 to cover their production costs, while the remaining $150 will be sent to the Virginia Department of Game and Inland Fisheries as your contribution to Virginia's Nongame and Endangered Species Fund. A tax advisor should be consulted regarding the personal tax deductibility of this contribution. Each piece sold will include a certificate of origin and a letter confirming your contribution to the future of Virginia's wildlife.

You may order either the piping plover or the Northern flying squirrel by sending a $325 check for each signed and numbered sculpture to: Turner Sculpture, Box 128 Onley, VA 23418. For credit card orders, call: 804/787-2818. *Orders received by December 15 will arrive in time for Christmas.*

Note: if you have already purchased a Bewick's wren or Northern flying squirrel and would like the same limited edition number in the piping plover, please send in your order as soon as possible.

Photo of piping plover approximates actual size.

Northern flying squirrel (height: 7 inches) by David Turner.

TURNER SCULPTURE

Nongame and Endangered WILDLIFE · PROGRAM
VIRGINIA DEPARTMENT OF GAME AND INLAND FISHERIES

Index to Virginia Wildlife

1993, Volume 54, Numbers 1-12

BIRDS

A Special Delivery, *Powell* . . . . . Apr., p. 16
Birds of a Feather Don't Always Flock Together *Constanzo* . . . . . Dec., p. 4
Ducks in the Trees, *Knuth* . . . . . June, p. 35
Flights of Fancy, *White* . . . . . July, p. 4
May Crescendo, *Knuth* . . . . . May, p. 33
The Bald Eagle: Diary of a Flagship Species, *Bradshaw* . . . . . Feb., p. 32
The Birds of May, *Knuth* . . . . . May, p. 4

BOATING SAFETY

Assault on Batteries, *Antozzi* . . . . . Sept., p. 32
Beware of Big Ships, *Antozzi* . . . . . July, p. 34
Danger Lurks in the Depths, *Antozzi* . . . . . Oct., p. 34
Drunken Boat Operators Are Dangerous, *Antozzi* . . . . . Aug., p. 32
GPS is Boon to Boaters, *Antozzi* . . . . . May, p. 32
Guns on Board?, *Antozzi* . . . . . Dec., p. 39
Harden the Target Boat, *Antozzi* . . . . . Apr., p. 34
Recreational Boaters Accused of Pollution, *Antozzi* . . . . . June, p. 34
That Sinking Feeling, *Antozzi* . . . . . Mar., p. 34
What's Your Line?, *Antozzi* . . . . . Nov., p. 33

ENVIRONMENT

A Bird's Eye View...of CoastalWetlands, *Bradshaw* . . . . . Oct., p. 13
Sojourners, *White* . . . . . Oct., p. 24

FISHING

1992 Anglers Hall of Fame, ... Apr., p. 14
1993 Trout Guide, ... Mar., p. 14
Catchable Trout Stocking Plan, ... Mar., p. 16
Bringing in the Big Daddys, *Murray* . . . . . July, p. 16
Catfishing: It's a Whole New Game, *Almy* . . . . . Aug., p. 22
Chickahominy River Bass, *Almy* . . . . . May, p. 20
Fishing the Rivanna, *Gooch* . . . . . Apr., p. 10
Float Fishing Made Easy, *Almy* . . . . . July, p. 8
June Firecrackers, *Almy* . . . . . June, p. 21
Let Your Imagination Fly, *Murray* . . . . . Mar., p. 7
Make Room for Crappies, *Almy* . . . . . Apr., p. 20
Pole Tales, *Randolph* . . . . . June, p. 18
Streamers and Smallmouths, *Murray* . . . . . June, p. 25
Tossing Out the Small Fry, *Eades* . . . . . Aug., p. 14
Universal Lures, *Ingram* . . . . . July, p. 27
Virginia State Parks (and Fishing Holes) *Griffin & Mahoney* . . . . . June, p. 4

HUNTING

1993-94 Virginia Hunter's Guide . . . . . Sept., p. 8
A Season for Whitetails, *Gooch* . . . . . Nov., p. 14
A Season of Squirrels, *Almy* . . . . . Sept., p. 4
A World Apart: Beaver Swamp Ducks, *Ausband* . . . . . Nov., p. 22
Deer Gear, *Almy* . . . . . Nov., p. 10
Finding Your Ground—On a Dove Field, *Gooch* . . . . . Aug., p. 26
Fooling Toms, *Almy* . . . . . Apr., p. 25
Hunting the New Quail, *Almy* . . . . . Nov., p. 18
Late-Season Tactics for Deer, *Shumaker* . . . . . Dec., p. 27
Mistakes That Fly in Your Face, *Almy* . . . . . May, p. 12
Sporting Clays—Everything But The Feathers, *Ausband* . . . . . May, p. 24
Summertime Tree Stand Shopping, *Ausband* . . . . . Aug., p. 18
The Graceful Art of Wing-shooting, *Baskerville* . . . . . Aug., p. 10
Training in the Heavens, *Chichester* . . . . . Apr., p. 4

HUNTER SAFETY

Hunter Education Graduates in the Field, *Gooch* . . . . . Nov., p. 28

LOCALES

Dragon Run: A River of Wilderness, *Gooch* . . . . . July, p. 22
Nottoway River Float Trips . . . . . Apr., p. 17
Rappahannock/Rapidan River Float Trips, *Heerwald* . . . . . May, p. 16
Tumbling Full of Fish, *Ingram* . . . . . Mar., p. 4

MAMMALS

The Long-tailed Weasel, *Pagels* . . . . . July, p. 20

MISCELLANEOUS

A Magnificent Obsession: Audubon's *Birds of America*, *May* . . . . . Dec., p. 9
A Message in Art, *Sanders* . . . . . Feb., p. 36
A Rescue Mission for Wildlife, *Terwilliger* . . . . . Feb., p. 8
Beyond 2000: Virginia's Fish and Wildlife Legacy . . . . . Dec., p. 19
Creeks, *Knuth* . . . . . Apr., p. 31
Focus on Fish, Amphibians, Reptiles & Mollusks, *Bruenderman* . . . . . Feb., p. 11
Focus on Wildlife, *Reynolds* . . . . . Feb., p. 24
The New Frontier, *Richardson & Wright* . . . . . Feb., p. 4

PHOTOGRAPHY

A Day at the Office, *Richardson* . . . . . Apr., p. 33
A Familiar Face, *Richardson* . . . . . Sept., p. 33
A Photographer's Holiday Wish List, *Richardson* . . . . . Dec., p. 38
A Season on Spots, *Richardson* . . . . . June, p. 33
In Search of Ghosts and Groofwins, *Richardson* . . . . . Mar., p. 33
Learning to See, *Richardson* . . . . . Nov., p. 32
Polarize It, *Richardson* . . . . . Oct., p. 33
Simply Silhouettes, *Richardson* . . . . . Aug., p. 33
Your First Magazine Assignment, *Richardson* . . . . . May, p. 31

PICTORIAL

Southside Virginia, *Dyke, Gooch,* (Special Photo Issue) . . . . . Jan.

PLANTS

Purple Plague, *Capel* . . . . . July, p. 13

REPTILES & AMPHIBIANS

Beauty is Only Skin Deep, *Mitchell* . . . . . Aug., p. 4
Forest Giants, *Mitchell* . . . . . Oct., p. 4
Tales of Couch Potatoes and Heat-Seeking Missiles, *Mitchell* . . . . . June, p. 9
Unearthing Treasures, *Mitchell* . . . . . Feb., p. 18

RESOURCE MANAGEMENT

Be Fruitful and Multiply, *Norman* . . . . . Nov., p. 4
For Wildlife Only, *Gooch* . . . . . Dec., p. 15
Grouse'n About Grouse, *Hewitt* . . . . . Dec., p. 31

WILD FOOD PREPARATON

A Crab Cobbler for Summer, *Cone* . . . . . July, p. 33
Enjoy Bass With These Fillets, *Cone* . . . . . June, p. 32
How to Cook Pigeon, *Cone* . . . . . Sept., p. 31
Spring And White Perch Run Together, *Cone* . . . . . Mar., p. 32
Sunfish Are Super Good, *Cone* . . . . . May, p. 30
Tough Shooting—Tender Eating, *Cone* . . . . . Oct., p. 21
Turning Ill-tempered Turtles Into Good Meals, *Cone* . . . . . Apr., p. 32
Venison For Thanksgiving, *Cone* . . . . . Nov., p. 30
Virginia Catfish Dinner, *Cone* . . . . . Aug., p. 31
Wild Duck For Christmas, *Cone* . . . . . Dec., p. 37